Health Congress
Congresso de Saúde

Bridging Research and Clinical Practice
Da Investigação à Pratica Clínica

12.13 Dec 2025
Health Sciences Building
University of Aveiro

Event Organization:

dcm
universidade de aveiro
departamento de ciências médicas

essua
universidade de aveiro
escola superior de saúde

Egas Moniz
Health Alliance
Centro Académico Clínico

Aveiro, December 11th 2025

It is our great pleasure to welcome you to the Health Congress: Bridging Research and Clinical Practice, jointly organized by the Medical Sciences Department and the School of Health Sciences of the University of Aveiro, in collaboration with the Clinical Academic Center Egas Moniz Health Alliance.

This congress, held on December 12–13, 2025, brings together leading experts, researchers, clinicians, and students to explore the latest advancements in Cardiovascular and Respiratory Diseases, Infection and Resistance, Bone and Muscle Disorders, Neurological Diseases and New Frontiers in Health. Over these two days, we hope to foster a dynamic environment for sharing state-of-the-art knowledge, innovative diagnostic and therapeutic approaches, and emerging developments in clinical research.

We are honored to host a distinguished panel of international and national speakers, whose contributions will undoubtedly enrich scientific discussion and inspire new perspectives. We also extend our sincere appreciation to all sponsors and supporters, whose commitment has been essential to making this event possible.

We warmly thank you for joining us and contributing to a memorable and impactful congress. We wish you an inspiring experience and a pleasant stay in Aveiro.

Welcome to the University of Aveiro, and enjoy the congress!

Yours sincerely,

Ana Gabriela Henriques
Departamento de Ciências Médicas

Rui Costa
Escola Superior de Saúde

VENUE

The University of Aveiro (UA) is a renowned institution located in the coastal city of Aveiro, Portugal. Known for its innovative approach to education and research, UA offers a dynamic academic environment supported by state-of-the-art facilities and cutting-edge scientific development across different fields, including healthcare. With a strong commitment to excellence and collaboration, the University provides an ideal setting for hosting this event, fostering knowledge exchange and scientific advancement. Surrounded by scenic landscapes and easily accessible from the city center, the campus offers an inspiring atmosphere for participants to engage, learn, and network during the Health Congress.

The event will take place at the Health Sciences complex of the University of Aveiro, which integrates the Department of Medical Sciences (DCM) and the School of Health Sciences (ESSUA).

HOW TO ARRIVE

> by train: The main railway (North Line) has several trains stopping in Aveiro.

From the train station to UA you can catch a bus (number 11), go on foot (20 min walk) or take a taxi by the station.

> by car: If you are coming from the North on the A1 highway, take the A25 second exit to Aveiro.

If you are coming from the South on the A1, take the Aveiro-Sul/Águeda exit (15) and turn right onto the EN235 which will take you directly to the UA campus.

Coordinates: 40°37'24.2"N | -8°39'27.7"W

ORGANIZING COMMITTEE

Ana G. Henriques - Department of Medical Sciences, University of Aveiro

Ana Filipa Neves - School of Health Sciences, University of Aveiro

Catarina Almeida - Department of Medical Sciences, University of Aveiro

Cristina Simões - Department of Medical Sciences, University of Aveiro

Diogo Trigo - Department of Medical Sciences, University of Aveiro

Fernando Ribeiro - School of Health Sciences, University of Aveiro

João Lindo - School of Health Sciences, University of Aveiro

Mário Lopes - School of Health Sciences, University of Aveiro

Mário Rodrigues - School of Health Sciences, University of Aveiro

Rita Ferreira - Department of Chemistry, University of Aveiro

Sandra Rebelo - Department of Medical Sciences, University of Aveiro

Sónia Cruz Pião - Department of Medical Sciences, University of Aveiro

SCIENTIFIC COMMITTEE

Alda Marques - School of Health Sciences, University of Aveiro

Anabela Silva - School of Health Sciences, University of Aveiro

Artur Silva - Vice-Rector of University of Aveiro

Bruno Jesus - Department of Medical Sciences, University of Aveiro

Bruno Neves - Department of Medical Sciences, University of Aveiro

Francisco Amado - Department of Medical Sciences, University of Aveiro

Gonçalo Santinha - Department of Social, Political and Territorial Sciences, University of Aveiro

José Alvarelhão - School of Health Sciences, University of Aveiro

José Luís Oliveira - Department of Electronics, Telecommunications and Informatics, University of Aveiro

Josefa Pandeirada - Department of Education and Psychology, University of Aveiro

Margarida Fardilha - Department of Medical Sciences, University of Aveiro

Nelson Rocha - Department of Medical Sciences, University of Aveiro

Odete Silva - Department of Medical Sciences, University of Aveiro

Rui Costa - School of Health Sciences, University of Aveiro

PLENARY LECTURES

Milestones in AI: From Early Models to Modern Breakthroughs
Paulo Jorge Ferreira | Rector of University of Aveiro

Research for action: how can we move it faster and further?
Gustavo Tato Borges | Regional Health Delegate for the North

INVITED SPEAKERS

Translational research in cardiovascular diseases
Adelino Leite Moreira | Faculty of Medicine, University of Porto, Portugal

Host-directed medicine approaches in critical care
Agostinho Carvalho | ICVS, University of Minho, Braga, Portugal

Reimagining Care at a Distance: Keeping Quality, Safety, and the Patient at the Centre in the Digital Age
Ana Luísa Neves | Faculty of Medicine, Imperial College London, United Kingdom

Heart and Lung: dangerous liaisons
Cristina Gavina | Portuguese Society of Cardiology, Portugal

Cerebral venous thrombosis: recent advances and future directions
Diana Dias de Sousa | Faculty of Medicine, University of Lisbon, Portugal

The SPLIT programme: A stratified model of service delivery for managing patients with Low Back Pain in Primary Health Care
Eduardo Brazete Cruz | School of Health, Polytechnic Institute of Setúbal, Portugal

Prevention of infection and antimicrobial resistance: two sides of the pandemic. Future challenges at national and international levels
Gianina Scripcaru | National Health Directorate / Public Health Institute (DGS), Portugal

Human ingredients for tissue engineering
João Mano | Department of Chemistry, University of Aveiro, Portugal

Lesões Ligamentares e Meniscais no Alto Rendimento Desportivo
José Carlos Noronha | Portuguese Football Federation, Portugal

Infección en las heridas: controversias y desafíos en la práctica clínica
Jose Verdu Soriano | University of Alicante, Alicante, Spain

Universal genomic newborn screening?
Laurent Servais | MDUK Oxford Neuromuscular Centre, Oxford, United Kingdom

Vectors, Viruses, and Vulnerabilities: Uncovering Arbovirus Public Health Risks in a Warming World
Líbia Zé-Zé | National Institute of Health Doctor Ricardo Jorge (INSA), Lisbon, Portugal

The Importance of Real-Time Genomics in Monitoring Antimicrobial Resistance in Healthcare Settings
Luís Malheiro | Local Health Unit of Gaia and Espinho, Portugal

AI, Health & Science: Building a Secure and Ethical Future
Luís Monteiro | Local Health Unit of Aveiro Region & University of Aveiro, Portugal

Redefining Dementia Care: New Approaches for Diagnosis and Treatment
Luís Ruano | Local Health Unit of Entre Douro e Vouga, Santa Maria da Feira, Portugal

Rethinking brain disease in myotonic dystrophy: It's not all about neurons
Mário Gomes-Pereira | Myology Research Centre, Paris, France

Current Challenges in Translational and Clinical Neuroscience
Miguel Castelo-Branco | CIBIT, University of Coimbra, Portugal

The Complexity of Patients on Prolonged Mechanical Ventilation: From Hospital to Home-based Respiratory Care
Miguel Gonçalves | Faculty of Medicine, University of Porto, Portugal

The Role of Retinoic Acid and Metals towards Alzheimer's Disease Therapeutic Strategies
Odete da Cruz e Silva | Department of Medical Sciences, University of Aveiro, Portugal

Robot-assisted neurorehabilitation: from clinic to home to maximise therapy dose
Olivier Lambercy | Federal Institute of Technology, Zurich

From Algorithms to Engagement: Gamified Intelligence in Digital Health
Ricardo Queirós | Instituto Politécnico do Porto, Portugal

Advances in Heart Failure Therapy Over the Past Decade
Rui Baptista | Local Health Unit of Entre Douro e Vouga, Santa Maria da Feira, Portugal

The paradigm of rheumatic diseases in Portugal
Tiago Meirinho | Local Health Unit of Gaia and Espinho, Portugal

Brain regional susceptibility to neurodegenerative disorders
Tiago Oliveira | ICVS, School of Medicine - University of Minho, Portugal

ORAL COMMUNICATIONS

OC1. Pulse Pressure as a predictor of cardiovascular events in different hypertensive phenotypes
Mariana Santos Silva | Local Health Unit Aveiro Region

OC2. Hospital readmissions after acute coronary syndrome: clinical profiles analysis
Ana Jorge Gonçalves | Faculty of Medicine, University of Porto

OC3. The restrictive illusion: why spirometry alone can mislead
André Veloso | Local Health Unit Algarve - Hospital de Faro

OC4. Mapping the burden of cough triggers and their impact on quality of life in chronic respiratory disease
Ana Sofia Grave | Lab3R, ESSUA and iBiMED, Department of Medical Sciences (DCM) – University of Aveiro, C-mo Medical Solutions

OC5. Prevalence os sentinel fragility vertebral fracture in patients with hip fracture - a retrospective study
Inês Genrinho | Centro Académico Clínico Egas Moniz Health Alliance; Rheumatology Unit - Unidade Local de Saúde Viseu Dão Lafões; Rheumatology Department - Unidade Local de Saúde da Região de Aveiro

OC6. Decoding pDC-mediated fibrosis: ER stress and mechanosensing as dual drivers in systemic sclerosis
Mariana D. Machado | iBiMED, Department of Medical Sciences (DCM) - University of Aveiro

OC7. A flexible wearable sensor for passive respiratory monitoring: validation in healthy adults
Bernardo A. Vicente | CICECO, Department of Materials and Ceramics Engineering (DEMaC) - University of Aveiro

OC8. Aging promotes the pathoadaptive evolution of gut bacteria
Ana Sousa | iBiMED, Department of Medical Sciences (DCM) - University of Aveiro

OC9. Role of fiberoptic endoscopic evaluation of swallowing in guiding enteral feeding: retrospective cohort study
Daniela Ferreira | Local Health Unit Entre Douro e Vouga

OC10. ATR-FTIR reveals spectroscopic signatures related to improved recovery and healthier status following rehabilitation in spinal cord injury patients
Bárbara M. De Sousa | iBiMED, Department of Medical Sciences (DCM) - University of Aveiro

PTCHES

Pitch1. Sex-specific 17β-estradiol effects on human cardiac microvascular endothelial cells in HFPEF-related inflammation.
Joana Relva-Pinto | LAQV-REQUIMTE, Department of Chemistry - University of Aveiro; RISE-Health, Faculty of Medicine - University of Porto

Pitch2. Systemic lipids and obesogenic memory influence on mouse ipscs reprogramming and cardiac differentiation
Carlota Tavares-Marcos | iBiMED, Department of Medical Sciences (DCM) - University of Aveiro

Pitch3. Development of a new oxygen flowmeter and its application in respiratory rehabilitation programs
Rui Carvalho Santos | University of Aveiro

Pitch4. Genetic variants underpinning lung function decline in the lifelines cohort
Rui Marçalo | Genome Medicine Lab, iBiMED, Department of Medical Sciences (DCM); Lab3R, ESSUA - University of Aveiro

Pitch5. Navigating the treatment pathway for osteoporotic vertebral fractures: predictors of surgical decision-making
Inês Genrinho | Centro Académico Clínico Egas Moniz Health Alliance; Rheumatology Unit - Unidade Local de Saúde Viseu Dão Lafões; Rheumatology Department - Unidade Local de Saúde da Região de Aveiro

Pitch6. Mental up: an effective socio-emotional skills training program for adolescents in an academic health context
Helena Loureiro | Escola Superior de Saúde (ESSUA) - Universidade de Aveiro; Unidade Local Saúde da Região de Aveiro

Pitch7. Upskilling the healthcare workforce: designing and evaluating hybrid training programs for clinical research literacy
Ricardo Racha-Pacheco | Q2Science

Pitch8. Fatigue impacts the quality of life of patients with myositis, regardless of age, sex, and muscle strength
Maria Diana Pascoal | Rheumatology Department - Unidade Local de Saúde Região de Aveiro; Centro de Investigação em Reumatologia de Aveiro, Centro Académico Clínico Egas Moniz Health Alliance

Pitch9. Phenotypic heterogeneity in cancer stem cells of non-muscle invasive bladder cancer
Catarina Mestre | University of Coimbra, iCBR, CIMAGO, Institute of Biophysics, CiBB; CACC; Hospitais CUF Coimbra

Pitch10. Identification of novel BRCA2 epistatic interactions
Rui Gonçalo Martinho | iBiMED, Department of Medical Sciences (DCM) - University of Aveiro; Faculty of Medicine and Biomedical Sciences, University of the Algarve

Pitch11. A biomechanical–mathematical model linking brain impact biomechanics to tau protein accumulation in chronic traumatic encephalopathy

José González-Cabrero | TEMA, Department of Mechanical Engineering, - University of Aveiro; Department of Cell Biology, Genetics and Physiology, Instituto de Investigacion Biomedica de Malaga - IBIMA, Faculty of Sciences, Malaga University; CIBERNED; Department of Neurology, The University of Texas Health Science Center at Houston, LASI

Pitch12. Retinoid modulation attenuates amyloidogenic processing and restores mitochondrial function in an in vitro model of Alzheimer's disease

José João Vitória | iBiMED, Department of Medical Sciences (DCM) - University of Aveiro

PROGRAM

Day 1 | 12th December 2025
Health Sciences Building - University of Aveiro

08:15 – 09:15 **Registration**

09:15 – 09:45 **Welcome Session | Conference Auditorium (30A.2.01)**
Paulo Jorge Ferreira, Rector | University of Aveiro
Artur Silva, Vice-Rector | University of Aveiro
Francisco Amado, Director | Department of Medical Sciences (DCM) -University of Aveiro
Rui Costa, Director | School of Health Sciences (ESSUA) - University of Aveiro
Ana Gabriela Henriques, Chair | Department of Medical Sciences (DCM) - University of Aveiro

09:45 – 11:25 **SESSION I. Transforming Healthcare: Innovations & Challenges in Digital Health | Conference Auditorium (30A.2.01)**
Chairs: Rui Costa, ESSUA**; Francisco Amado,** DCM**; Odete da Cruz e Silva,** DCM

Plenary lecture

09:45 – 10:15 Milestones in AI: From Early Models to Modern Breakthroughs
Paulo Jorge Ferreira, Rector | University of Aveiro

Invited speakers

10:15 – 10:50 Reimagining Care at a Distance: Keeping Quality, Safety, and the Patient at the Centre in the Digital Age
Ana Luísa Neves | Imperial College London

10:50 – 11:25 AI, Health & Science: Building a Secure and Ethical Future
Luís Monteiro, Unidade Local Saúde da Região de Aveiro | Department of Medical Sciences (DCM) - University of Aveiro

11:25 – 13:00 Poster Session

13:00 – 14:15 *Lunch*

14:15 – 14:20 Congress Photo

14:20 – 15:40 **SESSION II. Basic, Clinical and Translational Health Research | Conference Auditorium (30A.2.01)**
Chairs: Pedro Sardo, ESSUA**; Sandra Rebelo,** DCM

Oral Communications

14:20 – 14:30 OC1. Pulse Pressure as a predictor of cardiovascular events in different hypertensive phenotypes
Mariana Santos Silva | Unidade Local de Saúde Região de Aveiro

14:30 – 14:40 OC2. Hospital readmissions after acute coronary syndrome: clinical profiles analysis
Ana Jorge Gonçalves | Faculty of Medicine, University of Porto

14:40 – 14:50 OC3. The restrictive illusion: why spirometry alone can mislead
André Veloso | Unidade Local Saúde Algarve - Hospital de Faro

14:50 – 15:00 OC4. Mapping the burden of cough triggers and their impact on quality of life in chronic respiratory disease
Ana Sofia Grave | Lab3R, ESSUA and iBiMED, Department of Medical Sciences (DCM) - University of Aveiro, C-mo Medical Solutions

15:00 – 15:10 OC5. Prevalence os sentinel fragility vertebral fracture in patients with hip fracture - a retrospective study
Inês Genrinho | Centro Académico Clínico Egas Moniz Health Alliance; Rheumatology Unit - Unidade Local de Saúde Viseu Dão Lafões; Rheumatology Department - Unidade Local de Saúde da Região de Aveiro

15:10 – 15:20 OC6. Decoding pDC-mediated fibrosis: ER stress and mechanosensing as dual drivers in systemic sclerosis
Mariana D. Machado | iBiMED, Department of Medical Sciences (DCM) - University of Aveiro

Pitchs

15:20 – 15:25 Pitch1. Sex-specific 17β-estradiol effects on human cardiac microvascular endothelial cells in HFPEF-related inflammation.
Joana Relva-Pinto | LAQV-REQUIMTE, Department of Chemistry - University of Aveiro; RISE-Health, Faculty of Medicine - University of Porto

15:25 – 15:30 Pitch2. Systemic lipids and obesogenic memory influence on mouse ipscs reprogramming and cardiac differentiation
Carlota Tavares-Marcos | iBiMED, Department of Medical Sciences (DCM) - University of Aveiro

15:30 – 15:35 Pitch3. Development of a new oxygen flowmeter and its application in respiratory rehabilitation programs
Rui Carvalho Santos | University of Aveiro

15:35 – 15:40 Pitch4. Genetic variants underpinning lung function decline in the lifelines cohort
Rui Marçalo | Genome Medicine Lab, iBiMED, Department of Medical Sciences (DCM); Lab3R, ESSUA - University of Aveiro

15:40 – 15:45 Pitch5. Navigating the treatment pathway for osteoporotic vertebral fractures: predictors of surgical decision-making
Inês Genrinho | Centro Académico Clínico Egas Moniz Health Alliance; Rheumatology Unit - Unidade Local de Saúde Viseu Dão Lafões; Rheumatology Department - Unidade Local de Saúde da Região de Aveiro

15:45-15:50 Pitch6. Mental up: an effective socio-emotional skills training program for adolescents in an academic health context
Helena Loureiro | Escola Superior de Saúde (ESSUA) - Universidade de Aveiro; Unidade Local Saúde da Região de Aveiro

15:50 – 16:30 *Coffee Break*

16:30 – 17:45 **SESSION II. Basic, Clinical and Translational Health Research | Conference Auditorium (30A.2.01)**
Chairs: Sandra Vieira, DCM**; Bruno Jesus,** DCM

Oral Communications

16:30 – 16:40 OC7. A flexible wearable sensor for passive respiratory monitoring: validation in healthy adults
Bernardo A. Vicente | CICECO, Department of Materials and Ceramics Engineering (DEMaC) - University of Aveiro

16:40 – 16:50 OC8. Aging promotes the pathoadaptive evolution of gut bacteria
Ana Sousa | iBiMED, Department of Medical Sciences (DCM) - University of Aveiro

16:50 – 17:00 OC9. Role of fiberoptic endoscopic evaluation of swallowing in guiding enteral feeding: retrospective cohort study
Daniela Ferreira | Unidade Local de Saúde de Entre Douro e Vouga

17:00 – 17:10 OC10. ATR-FTIR reveals spectroscopic signatures related to improved recovery and healthier status following rehabilitation in spinal cord injury patients
Bárbara M. De Sousa | iBiMED, Department of Medical Sciences (DCM) - University of Aveiro

Pitchs

17:10 – 17:15 Pitch7. Upskilling the healthcare workforce: designing and evaluating hybrid training programs for clinical research literacy
Ricardo Racha-Pacheco | Q2Science

17:15 – 17:20 Pitch8. Fatigue impacts the quality of life of patients with myositis, regardless of age, sex, and muscle strength
Maria Diana Pascoal | Rheumatology Department - Unidade Local de Saúde Região de Aveiro; Centro de Investigação em Reumatologia de Aveiro, Centro Académico Clínico Egas Moniz Health Alliance

17:20 – 17:25 Pitch9. Phenotypic heterogeneity in cancer stem cells of non-muscle invasive bladder cancer
Catarina Mestre | University of Coimbra, iCBR, CIMAGO, Institute of Biophysics, CiBB; CACC; Hospitais CUF Coimbra

17:25 – 17:30 Pitch10. Identification of novel BRCA2 epistatic interactions
Rui Gonçalo Martinho | iBiMED, Department of Medical Sciences (DCM) - University of Aveiro; Faculty of Medicine and Biomedical Sciences, University of the Algarve

17:30 – 17:35 Pitch11. A biomechanical–mathematical model linking brain impact biomechanics to tau protein accumulation in chronic traumatic encephalopathy
José González-Cabrero | TEMA, Department of Mechanical Engineering, - University of Aveiro; Department of Cell Biology, Genetics and Physiology, Instituto de Investigacion Biomedica de Malaga - IBIMA, Faculty of Sciences, Malaga University; CIBERNED; Department of Neurology, The University of Texas Health Science Center at Houston, LASI

17:40 – 17:45 Pitch12. Retinoid modulation attenuates amyloidogenic processing and restores mitochondrial function in an in vitro model of Alzheimer's disease
José João Vitória | iBiMED, Department of Medical Sciences (DCM) - University of Aveiro

19:30 Networking Dinner
21:45 Party & Awards

Day 2 | **13th December 2025**
Health Sciences Building - University of Aveiro

08:30 – 09:30 **Registration**

9:30 – 12:20 **SESSION III. Innovations in Healthcare | Conference Auditorium (30A.2.01)**
Chairs: Ana Rita Pinheiro, ESSUA; **Rita Ferreira,** DQ; **Mário Lopes**, ESSUA; **Francisco Amado**, DCM

Invited Speakers

9:30 – 10:05 Robot-assisted neurorehabilitation: from clinic to home to maximise therapy dose
Olivier Lambercy | Federal Institute of Technology, Zurich

10:05 – 10:40 Human ingredients for tissue engineering
João Mano | Chemistry Department - University of Aveiro

10:40 – 11:10 *Coffee break*

11:10 – 11:45 From Algorithms to Engagement: Gamified Intelligence in Digital Health
Ricardo Queirós | Instituto Politécnico do Porto

11:45 – 12:20 **Plenary lecture**
Research for action: how can we move it faster and further?
Gustavo Tato Borges | DSR / DGS

12:20 – 14:00 *Lunch*

14:00 – 16:30 **Parallel Session IV. Cardiovascular and Respiratory diseases: New Frontiers in the Diagnosis and Treatment | Conference Auditorium (30A.1.47)**
Chairs: José António Santos, ULS Região Aveiro; **Sandrina Pereira,** DCM

Invited Speakers

14:00 – 14:30 Heart and Lung: dangerous liaisons
Cristina Gavina | Portuguese Society of Cardiology; Cardiology Department – Unidade Local de Saúde de Matosinhos

14:30 – 15:00 Advances in Heart Failure Therapy Over the Past Decade
Rui Baptista | Unidade Local de Saúde de Entre Douro e Vouga

15:00 – 15:30 Translational research in cardiovascular diseases
Adelino Leite-Moreira | School of Medicine - University of Porto

15:30 – 16:00 The Complexity of Patients on Prolonged Mechanical Ventilation: From Hospital to Home-based Respiratory Care
Miguel Gonçalves | School of Medicine - University of Porto

14:00 – 16:30 **Parallel Session IV. Bone and Muscle Disorders: New Frontier in the Diagnosis and Treatment | Conference Auditorium (30A.2.01)**
Chairs: José Alberto Duarte, CESPU**; António Amaro**, ESSUA

Invited Speakers

14:00 – 14:30 The paradigm of rheumatic diseases in Portugal
Tiago Meirinho | Serviço Reumatologia – Unidade Local de Saúde de Gaia e Espinho

14:30 – 15:00 Lesões Ligamentares e Meniscais no Alto Rendimento Desportivo
José Carlos Noronha | Federação Portuguesa de Futebol

15:00 – 15:30 The SPLIT programme: A stratified model of service delivery for managing patients with Low Back Pain in Primary Health Care
Eduardo Brazete Cruz | Escola Superior de Saúde - Instituto Politécnico de Setúbal

15:30 – 16:00 Rethinking brain disease in myotonic dystrophy: It's not all about neurons
Mário Gomes-Pereira | Myology Research Centre, Paris

16:00 – 16:30 Universal genomic newborn screening?
Laurent Servais | MDUK Oxford Neuromuscular Centre, Oxford

14:00 – 16:30 **Parallel Session IV. Infection and Resistance: New Frontiers in the Diagnosis and Treatment | Conference Room (30A.3.41)**
Chairs: Daniela Ribeiro, DCM**; Ana Margarida Sousa**, DCM

Invited Speakers

14:00 – 14:30 Host-directed medicine approaches in critical care
Agostinho Carvalho | ICVS, University of Minho

14:30 – 15:00 The Importance of Real-Time Genomics in Monitoring Antimicrobial Resistance in Healthcare Settings
Luís Malheiro | Unidade Local de Saúde Gaia e Espinho

15:00 – 15:30 Vectors, Viruses, and Vulnerabilities: Uncovering Arbovirus Public Health Risks in a Warming World
Líbia Zé-Zé | Instituto Nacional de Saúde Doutor Ricardo Jorge

15:30 – 16:00 Prevention of infection and antimicrobial resistance: two sides of the pandemic. Future challenges at national and international levels
Gianina Scripcaru | PPCIRA - Direção-Geral da Saúde

16:00 – 16:30 Infección en las heridas: controversias y desafíos en la práctica clínica
Jose Verdu Soriano | Universidad de Alicante, Spain

14:00 – 16:30 **Parallel Session IV. Neurological Diseases: New Frontiers in the Diagnosis and Treatment | Conference Room (30A.3.39)**
Chairs: Ramiro Almeida, DCM**; Josefa Pandeirada**, DEP

Invited Speakers

14:00 – 14:30 Current Challenges in Translational and Clinical Neuroscience
Miguel Castelo-Branco | CIBIT, University of Coimbra

14:30 – 15:00 Brain regional susceptibility to neurodegenerative disorders
Tiago Oliveira, ICVS, School of Medicine - University of Minho

15:00 – 15:30 Cerebral venous thrombosis: recent advances and future directions
Diana Dias de Sousa | School of Medicine - University of Lisbon

15:30 – 16:00 Redefining Dementia Care: New Approaches for Diagnosis and Treatment
Luís Ruano | Unidade Local de Saúde Entre Douro e Vouga, University of Aveiro

16:00 – 16:30 The Role of Retinoic Acid and Metals towards Alzheimer's Disease Therapeutic Strategies
Odete da Cruz e Silva | iBiMED, Department of Medical Sciences (DCM), University of Aveiro

16:30 – 17:00 **Farewell Drink**

PLENARY LECTURES

Paulo Jorge Ferreira

Rector of University of Aveiro

Milestone in AI: From Early Models to Modern Breakthroughs

Biography

Rector of the University of Aveiro and President of the Council of Rectors of Portuguese Universities (CRUP), Paulo Jorge Ferreira holds a PhD in Electrical Engineering and is a Full Professor in the Department of Electronics, Telecommunications and Informatics at the University of Aveiro, where he served as director between February 2015 and February 2018.

He has experience in departmental leadership and management positions, course directorships, scientific committees, evaluation committees, on the UA General Council, the UA Performance Assessment Coordinating Council, the UA Doctoral School Council, and in the leadership of doctoral programs in national and international consortia.

His research activities have resulted in several national and international patents. In addition to winning the IBM Scientific Award in 1993, with work based on his doctoral thesis (Study and Unification of a Class of Sampling, Interpolation and Extrapolation Problems), he collaborated on or was responsible for various research projects with national and international teams; served as editor for international scientific journals in the fields of engineering and mathematics; and authored or co-authored works in diverse areas, published in international journals of Electrical Engineering, Agriculture, Informatics, Bioinformatics, Mathematics, Statistics, Physics, Biology, or Medicine.

Gustavo Tato Borges

Delegado de Saúde Regional Norte, Portugal

Research for action: how ca we move faster and further?

Biography

Gustavo Tato Aguiar Pelicano Borges is a doctor specializing in Public Health. He currently serves as Regional Health Delegate for the North.

He graduated in Medicine from the University of Coimbra in 2009 and completed his general training at Braga Hospital in 2010. Between 2011 and 2014, he undertook specific training in Public Health at ACeS Grande Porto III – Maia/Valongo, becoming a specialist in 2015.

He worked as an assistant and health authority in several ACeS in the Greater Porto region between 2015 and 2024, including Maia/Valongo, Santo Tirso/Trofa, and Gondomar. He was also a permanent member of the medical board for the assessment of disability in the geographical area of ACeS Grande Porto I (2017) and worked as a graduate assistant in Public Health at the Local Health Unit of Santo António, obtaining the rank of consultant.

In the academic field, he was a guest assistant in the integrated master's degree in Medicine at ICBAS between 2014 and 2020. At the associative and institutional level, he stood out as vice-president (2019–2021) and president (2022–2024) of the National Association of Public Health Doctors. He also led the Special Commission for Monitoring the Fight against COVID-19 of the Regional Government of the Azores between December 2020 and August 2021.

INVITED SPEAKERS

Adelino Leite-Moreira

School of Medicine, University of Porto, Porto, Portugal

Translational research in cardiovascular diseases

Biography

Adelino Leite-Moreira is Full Professor of Physiology & Cardiothoracic Surgery at the Faculty of Medicine of the University of Porto, being also the Head of the Department of Physiology and Cardiothoracic Surgery and the Coordinator of the Cardiovascular R&D of the same institution. He has an appointment as Senior Consultant and Head of the Department of Cardiothoracic Surgery at the affiliated University Hospital São João in Porto, Portugal. He develops his private practice in the field of Cardiac Surgery at Hospitals CUF Porto and CUF Coimbra, where he offers the most advanced treatment options to his patients. Besides these positions, he also accumulates different management duties at the University.

He graduated as a medical doctor in 1989 at FMUP and trained as a research fellow from 1991 to 1994, at the Department of Physiology and Medicine of the University of Antwerp, Belgium, where he developed his interest in the field of diastolic function and heart failure with preserved ejection fraction. It was in this field that he defended his PhD thesis in 1997.

In 2003 he completed his clinical training as cardiothoracic surgeon at Hospital São João. He has special interest in surgical and technical innovation and holds particular expertise in the fields of reconstructive mitral and aortic valves surgery, aortic and aortic root surgery, less invasive surgery, as well as, in total arterial off-pump coronary artery bypass graft surgery.

Besides cardiothoracic surgery, diastolic function and heart failure, his research interests also include right ventricular function and pulmonary hypertension. Over the years, he authored more than 500 full-papers in prestigious international journals, was granted with more than 12 M€ on competitive calls and was awarded with several major scientific prizes.

His future endeavors are focused on promotion of scientific, technological and clinical innovation and excellence.

Agostinho Carvalho

ICVS, University of Minho

Host-directed medicine approaches in critical care

Biography

Agostinho Carvalho é Investigador Principal e Vice-Diretor do Instituto de Investigação em Ciências da Vida e Saúde (ICVS) da Universidade do Minho, em Braga, Portugal. O seu grupo de investigação foca-se em elucidar o papel da interação entre o perfil genético e imunitário do hospedeiro no desenvolvimento de doenças pulmonares inflamatórias e infeciosas.

As principais áreas de atuação incluem a análise do papel da variabilidade genética individual na regulação de processos moleculares e celulares do sistema imunitário no pulmão, bem como a identificação de novos alvos de prognóstico, diagnóstico e terapia para avançar intervenções médicas personalizadas.

Estes objetivos são desenvolvidos por uma equipa multidisciplinar composta por cientistas básicos e especialistas clínicos. A equipa utiliza modelos avançados de doença em células e animais, além de pacientes humanos provenientes de consórcios nacionais e internacionais.

Ana Luísa Neves

Department of Primary Care and Public Health, Imperial College London
MEDCIDS @RISE, Faculty of Medicine, University of Porto

Reimagining Care at a Distance: Keeping Quality, Safety, and the Patient at the Centre in the Digital Age

This lecture takes a closer look at how care at a distance is reshaping healthcare. We will explore the main ways these approaches are being used today (i.e. virtual consultations, remote monitoring, and remote self-management), and revisit the ideas that sit behind them. Throughout the session, we will consider what these new models mean for the quality and safety of care, and how we can introduce them in ways that protect core values such as patient-centredness. Drawing on real-world examples and international initiatives, we will discuss the opportunities they open up, the challenges they still present, and what they might mean for the future of delivering care.

Keywords: Virtual care, quality, safety

Biography

Prof Ana Luisa Neves is a Clinical Associate Professor in Digital Health and Director of the Global Digital Health Unit at Imperial College London, leading multidisciplinary research to develop evidence-based digital health solutions. She oversees doctoral and postdoctoral teams focused on improving the safety, effectiveness and patient-centredness of care through technology. With over 15 years' experience and more than 80 peer-reviewed publications, she brings clinical training in General Practice and international research experience at Imperial College London (London), Ariadne Labs @ Harvard University (Boston), and INSERM (Paris). Prof Neves currently serves as Vice-Chair of EGPRN and Chair of WONCA's eHealth Working Party.

Cristina Gavina

President of the Portuguese Society of Cardiology; Director of Cardiology at ULS Matosinhos, Porto, Portugal

Heart and Lung: dangerous liaisons

Biography

Cristina Gavina is Director of the Medical and Cardiology Departments at Hospital Pedro Hispano–ULS Matosinhos and a Senior Consultant Cardiologist. A former leader in the Portuguese Society of Cardiology, she is also Assistant Professor at the University of Porto and a Fellow of the European Society of Cardiology and American College of Cardiology, with interests in valvular disease, heart failure and aortic stenosis.

Diana Dias de Sousa

Unidade Cerebrovascular, Departamento de Neurociências, ULS São José, Lisboa
Faculdade de Medicina, Universidade de Lisboa
Gulbenkian Institute for Molecular Medicine

Cerebral venous thrombosis: recent advances and future directions

Cerebral venous thrombosis (CVT) is an uncommon stroke type affecting approximately 12 per million people annually, in high income countries, although it is much more common in other regions of the world, such as India. Unlike arterial stroke, CVT presents unique challenges due to highly variable symptoms ranging from isolated headache to seizures, focal deficits, or coma, often leading to diagnostic delays. This presentation will synthesize recent advances in understanding, diagnosis, and management of CVT, mostly drawing on recent data from international cohorts and clinical trials. CVT disproportionately affects women, particularly during reproductive years, with established risk factors including oral contraceptives, pregnancy, infections, and inherited thrombophilia. The COVID-19 pandemic revealed new associations with both the infection itself and certain adenovirus vector vaccines, which can rarely trigger CVT with severe outcomes including mortality rates approaching 50% in vaccine-related cases. Modern CT and MRI venography have revolutionized detection, with novel imaging markers helping clinicians recognize CVT earlier, though high clinical suspicion remains crucial.

Anticoagulation remains the therapeutic cornerstone, even in the presence of intracranial hemorrhage, a paradigm unique to CVT. Emerging evidence demonstrates that venous clot dissolution often begins early during anticoagulation, within the first 8 days of treatment, challenging previous assumptions. Major recent studies have established that newer oral anticoagulants are as effective and potentially safer than warfarin, simplifying long-term management. For severe cases, decompressive surgery can be life-saving, while catheter-based clot removal shows promise but requires refined patient selection criteria.

Contemporary outcomes show declining mortality in the acute phase with 80% achieving functional independence. However, 20-40% of survivors cannot return to previous work levels due to persistent headache, cognitive difficulties, or depression. Future research priorities include optimizing anticoagulation duration, defining endovascular therapy indications, and addressing long-term quality-of-life impairments that significantly affect CVT survivors.

Keywords: Stroke, Anticoagulation, outcomes

Biography

Diana Aguiar de Sousa is a Portuguese Neurologist working at Lisbon Central University Hospital – ULS São José. She is also professor at Faculdade de Medicina, Universidade de Lisboa, and investigator at the Gulbenkian Institute for Molecular Medicine.

Diana Aguiar de Sousa earned her PhD degree in Neurology from Faculdade de Medicina, Universidade de Lisboa. She also completed with honours the Clinical Scholars Research Training Certificate Program from Harvard Medical School (Global Education Program), and a European Academy of Neurology Research Fellowship in acute stroke at Inselspital Bern, Switzerland (2016). She was awarded with a Young Investigator Award of the European Stroke Organization (ESO) in 2016 and two outstanding reviewer awards from Stroke (2019 and 2023).

Diana de Aguiar Sousa is Co-Chair of the Guideline Board at the European Stroke Organisation (ESO) and a member of the Steering Committee for the Implementation of the Stroke Action Plan for Europe. She is also member of the Clinical Research Subcommittee of the American Academy of Neurology (AAN). She supervised/supervises four doctoral thesis and several master theses.

Diana Aguiar de Sousa is Assistant Editor of Stroke (AHA/ASA journal), member of the Editorial Board of the European Stroke Journal and the International Journal of stroke, and section editor Acute Stroke Management at the Journal of Stroke and Cerebrovascular Diseases.

She has authored or co-authored over 140 peer-reviewed papers indexed in Pubmed, including the ESO guidelines for Cerebral Venous Thrombosis and management of unruptured intracranial aneurysms. Her primary research interests are implementation of stroke care and stroke in the young, with a focus on cerebral venous thrombosis and cerebrovascular disorders in pregnancy.

Eduardo Brazete Cruz

Instituto Politécnico de Setúbal, Escola Superior de Saúde, Comprehensive Health Research Center (CHRC).

The SPLIT programme: A stratified model of service delivery for managing patients with Low Back Pain in Primary Health Care

Low back pain (LBP) is the most prevalent musculoskeletal condition and the leading cause of disability worldwide. In Portugal, the estimated prevalence of LBP is 26.4%, and recent national projections indicate an increase of more than 8% by 2050.

Paradoxically, most episodes of LBP are benign in nature; however, 10%–15% of individuals develop chronic LBP. Chronic LBP is associated with prolonged disability, depressive symptoms, reduced quality of life, and substantial costs related to lost work hours, and increased healthcare resource utilization. Consequently, a key priority for health services is to reduce the number of patients who, following an episode of LBP, develop chronic pain.

SPLIT is an innovative interdisciplinary program for the assessment and treatment of LBP, primarily aimed at reducing the number of individuals who develop chronic pain. It uses a screening tool that stratifies individuals into three risk categories (low-medium-high). This stratification optimizes referral to cost-effectiveness treatment modalities.

The SPLIT Program meets the WHO requirements summarized in the acronym CORRECT. Its outcomes have been documented and obtained in real-world settings. In a before-and-after study comprising two sequential but independent cohort studies with a sample of approximately 500 patients, and an average of four physiotherapy sessions per patient, the program reduced by 80% the likelihood of patients developing persistent and disabling LBP compared to usual care.

The SPLIT Program was selected to participate in the first phase of the Sustainable Health Pact 2030. The scale-up study of the program is currently underway, guided by implementation science principles and utilising the theoretical framework of the Consolidated Framework for Implementation Research (CFIR). It adopts a sequential mixed-methods design to identify determinants that may influence implementation success and applies the CFIR–Expert Recommendations for Implementing Change (ERIC) matching tool to prioritize strategies aimed at mitigating or enhancing these critical determinants.

Keywords: Low Back Pain; Stratified Model of Care; Physiotherapy

Biography

Professor Coordenador do Departamento de Fisioterapia da Escola Superior de Saúde do Instituto Politécnico de Setúbal (ESS-IPS). Doutorado em Fisioterapia, pela Universidade de Brighton, UK. Pós-Doutoramento na especialidade de Epidemiologia pela Escola Nacional de Saúde Pública da Universidade Nova de Lisboa. Investigador Integrado do Comprehensive Health Research Centre (CHRC). Investigador responsável pelos Projetos: PIPS- Implementação do Programa SPLIT a nível nacional; MyBack (Efetividade e implementação de um programa de autogestão personalizado para prevenir recorrências em utentes com lombalgia; SPLIT -Tratamento estratificado para indivíduos com lombalgia que recorrem aos cuidados de saúde primários.

Gianina Scripcaru

Direção-Geral da Saúde, Programa de Prevenção e Controlo de Infeções e de Resistência aos Antimicrobianos (PPCIRA)

Two Sides of the Pandemic – Future Challenges at National and International Levels

The COVID-19 pandemic has profoundly impacted infection prevention and antimicrobial resistance (AMR) strategies. This communication presents a critical analysis of Portugal's national program—PPCIRA—based on the most recent data (2025), assessing progress and limitations across the pre- and post-pandemic cycles. The presentation contextualizes national indicators in light of EU and WHO strategic frameworks and highlights future directions for integrated surveillance, stewardship, and training.

Audit data from 2025 show a progressive reestablishment of Infection Prevention and Control (IPC) practices, notably in hospitals, though further expansion in long-term and outpatient settings is required. Antimicrobial stewardship programs (ASPs) are being progressively relaunched, with a focus on multidisciplinary audits of prescription behavior. In parallel, ongoing digital integration efforts aim to unify microbiology, prescription, and IPC audit data into a centralized AMR monitoring architecture.

At the international level, alignment with the EU One Health Action Plan and the WHO Global AMR Plan offers structured opportunities for data harmonization and policy benchmarking. Key recommendations include scaling IPC and ASP coverage across all healthcare sectors, strengthening national information systems, and expanding workforce capacity through structured, cross-cutting training initiatives.

The conclusions reinforce a dual need: technical consolidation of national AMR control mechanisms, and strategic international articulation to ensure Portugal's effective contribution to the broader global AMR containment effort.

Keywords: Antimicrobial resistance, Infection prevention, Health policy

Biography

Gianina Scripcaru é representante do Programa de Prevenção e Controlo de Infeções e de Resistência aos Antimicrobianos da Direção-Geral da Saúde. Farmacêutica hospitalar, com formação na área da saúde pública e experiência em vigilância epidemiológica, controlo de infeção hospitalar e políticas de uso racional de antimicrobianos. Tem coordenado iniciativas nacionais e participado em articulações com entidades internacionais como o ECDC e a OMS.

João Mano

Department of Chemistry, CICECO — Aveiro Institute of Materials, University of Aveiro, 3810-193 Aveiro, Portugal;

Human ingredients for tissue engineering

Tissue engineering (TE) stands at the forefront of regenerative medicine, offering transformative strategies to restore, replace, or enhance biological function through the convergence of biomaterials, cells, and bioactive cues. Biomaterials are ubiquitous in TE solutions, as a structural support for adherent cells and as a vehicle to provide relevant biochemical and biophysical signals to control cell behavior. Different types of natural-based macromolecular materials have been proposed to prepare scaffolds for TE, including porous structures, hydrogels or microparticles. We have been proposing the use of human-derived proteins that, upon chemical modification, could be used to generate adequate microenvironments to interact adequately with cells. We have selected two sources of such materials: (i) platelet lysates, containing mostly globular proteins including relevant growth factors with highly regenerative potential; and (ii) proteins from amniotic membrane and placenta, composed of fibrical proteins such as collagens and other compoents of the extra-cellular matrix. Due to their hydrophilic nature and richness in chemically active groups, these proteins can be chemical modified to generate materials with new or improved properties, while maintaining the biochemical features of human tissues. As a unique feature, we demonstrate that cells could be cultured in such platform without the need of supplementation with animal-derived proteins, that could be highly relevant for the clinical translation of such solution.

In a completely different viewpoint, we have been also leveraging the important role of the cells in the development of contructs for TE. Exploring human cells as materials precursors is an exciting conception to design living materials with adequate functional and structural properties similarly to what ensues in the human body. In our group we have been proposing possibilities of using lower relative amount of biomaterials in the hybrid constructs in order to assemble human cells in different geometries, including partially-coated cells, spherical aggregates (spheroids), fibres (fiberoids), membranes (cell-sheets) and hydrogel-like materials (cellgels). Examples will be given on how bioengineered constructs could be obtained at different dimensional and length scales, mainly focusing on bone tissue regeneration.

Biography

João F. Mano is Full Professor of Biotechnology and Director of the Doctoral Program in Biotechnology at the University of Aveiro. He leads the COMPASS Research Group at CICECO and, since 2022, serves as Vice-Director of CICECO. He is co-founder and chairman of METATISSUE and CELLULARIS Biomodels and holds a Doctor Honoris Causa from the University of Lorraine. His research focuses on advanced biomaterials and cell-based strategies for regenerative and personalised medicine, for which he has received numerous distinctions, including ERC Advanced Grants, ERC Proof-of-Concept Grants, and, most recently, the ERC Synergy Grant project RODIN, which aims to develop sculptable living biomaterials to replicate complex tissue architectures.

José Carlos Noronha

Portuguese Football Federation

Lesões Ligamentares e Meniscais no Alto Rendimento Desportivo

São apresentados aspetos anatómicos, mecanismos lesionais e propostas terapduttcas, geralmente clrúrgicas, relacionadas com lesóes ligamentares e menlscals ocorrtdas em atletas de alto rendimento. Nomeadamente nas lesóes do llgamento cruzado anterior, sso referidos os vários tipos de enxerto utilizados para a reconstrução do llgamento cruzado anterior (LCA) e atuação sobre vários tipos de lesâo meniscal. Falar-se-& sobre a recuperação destas lesóes operadas.

Keywords: ligamento cruzado anterior, meniscos

Biography

Medicine from the University of Coimbra - 1979

Orthopedics from St. António Hospital - Porto - 1990

Doctorate from the University of Porto - 1999

Internships/Fellowships in Barcelona, Lyon, St. Etienne, Paris, and New York

Surgeon for Futebol Clube do Porto since 2003

Clinical Director of the Portuguese Football Federation since 2014

Jose Verdú Soriano

Deparatamento de Enfermería Comunitaria, Medicina Preventiva y Salud Pública e Historia de la Ciencia. Universidad de Alicante, Alicante. España.

Grupo de Investigación WINTER-Heridas: Wounds, INnovation, ThErapeutics and Research. Universidad de Alicante

Miembro del Comité Director del GNEAUPP. Grupo Nacional para el Estudio y Asesoramiento de Úlceras por Presión y otras Heridas Crónicas. España

Wound Infection and Biofilm: Controversies and Challenges in Clinical Practice

Wound infection remains a primary cause of delayed healing and typically results from the proliferation of planktonic microorganisms that activate an inflammatory response. When healing fails to progress despite appropriate care, biofilm is likely involved, as studies indicate it is present in most hard-to-heal wounds. Infection represents an imbalance between the microbial load and the host response, leading to impaired healing and recognizable clinical signs. Yet, controversy persists regarding how to distinguish inflammation, infection, and biofilm, as well as the appropriate role of microbiological cultures in guiding diagnosis and treatment. Importantly, inflammation does not necessarily indicate infection, and the clinical impact of biofilm continues to be explored.

Clinicians are encouraged to suspect infection when several signs and symptoms coexist rather than relying on a single indicator. Biofilm should be considered when wounds exhibit persistent inflammation and fail to heal at the expected rate despite optimal management.

The Theoretical Model of Optimal Wound Care highlights the need for holistic, structured care, combining infection prevention, debridement, therapeutic cleansing, and dressings that support wound bed preparation. Although cultures can support diagnosis, they are not always required; superficial samples may be misleading, and results can contribute to unnecessary antibiotic use. Clinical judgment therefore remains paramount. Diagnostic support tools range from non-instrumental resources, such as IWII guidelines, to instrumental techniques including MolecuLight, Wood Lamp, and advanced hydrogel dressings.

Both the International Wound Infection Institute and the European Wound Management Association emphasize antimicrobial stewardship and advocate for rational, evidence-informed decision-making. Future strategies prioritize interdisciplinary teamwork in Clinical Wound Units and continuous training to improve recognition of subtle indicators of infection and biofilm. These efforts aim to enhance patient outcomes and reduce complications across diverse wound types.

Keywords: Chronic Wounds, infection, Biofilm

Biography

Prof. José Verdú owns Diploma and Master's degree in Nursing, and a PhD in Public Health. Since 1999, has developed his academic career at the University of Alicante, where he is, currently, an Associate Professor and accredited for Full Professor. He has taught in national and international institutions and served on academic committees and editorial boards. His research work focuses on chronic wounds, holding leadership roles in EWMA, EPUAP, and GNEAUPP. I lead the WINTER-Heridas Research Group and have been leading in multiple projects. He has supervised 21 PhD theses and over 35 Master's dissertations, with extensive scientific output and international recognition.

Laurent Servais

Department of Paediatrics, University of Oxford, UK
Department of Paediatrics, University of Liège, Belgium

Universal Genomic Newborn screening

PCR-based newborn screening (NBS) of Spinal muscular atrophy (SMA) has been shown to be not only highly reliable and clinically efficient, but also highly cost effective. Based on the success of the rapid implementation of a pilot and an official program in Southern Belgium, we conceived a universal genomic newborn screening to detect at birth all treatable, early onset and severe condition of childhood- the babydetect program. From September 2022 to May 2025- we screened over 6,000 newborns from two maternity wards in Liège, Belgium for variants in 409 genes causing 126 conditions (1). In this lecture, I will report on the results and compare them with current programs. I will also emphasize on the learning from the different genomic newborn screening programs.

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Keywords: Newborn screening, Genomic, Rare genetic conditions

Biography

Laurent Servais, MD, PhD is professor of paediatric neuromuscular diseases at the University of Oxford and professor of Child Neurology at the University of Liège. His main area of research is wearable device based on magneto inertial technology and genomic newborn screening. He has invented and validated the first digital outcome either qualified by a regulatory body and has pioneering in Europe for both genetic newborn screening of spinal muscular atrophy and genomic newborn screening.

Líbia Zé-Zé

National Institute of Health Doutor Ricardo Jorge (INSA), Centre for Vectors and Infectious Diseases Research (CEVDI)
Center for the Study of Animal Science (CECA), Institute for Agricultural and Agro-Alimentary Science and Technology (ICETA), University of Porto
Associate Laboratory for Animal and Veterinary Science (AL4AnimalS), Portugal

Vectors, Viruses, and Vulnerabilities: Uncovering Arbovirus Public Health Risks in a Warming World

Arboviral diseases are caused by viruses that are transmitted to humans through the bites of arthropods, such as mosquitoes, ticks and sand flies. These diseases can cause a variety of symptoms, ranging from fever and rash to severe bleeding, organ impairment, and complications of the central nervous system, which can lead to fatal outcomes. Examples of arboviral diseases include dengue, yellow fever, Zika, West Nile and chikungunya, which are spread by Aedes spp. mosquitoes, and Crimean-Congo haemorrhagic fever, transmitted by Hyalomma spp. ticks. These diseases are prevalent worldwide, particularly in tropical and subtropical regions, and can lead to outbreaks and epidemics [1]. Environmental changes, such as climate change, extreme weather events, forest fires, extensive farming and the reduction of natural habitats, as well as increased trade and travel and altered migrations (both human and animal), present new challenges to public health. There has been an increase in autochthonous cases and outbreaks of several arboviral diseases in non-endemic regions [2]. Proactive, collaborative policies based on a One Health approach, combining routine entomological monitoring, early warning climate-based systems, genomic characterisation of viruses and adaptive vector control measures, are essential. As many people infected with arboviruses remain asymptomatic, all travellers arriving from endemic countries should be encouraged to take preventive measures against vector bites for at least one week after arriving in countries where vectors are established [3].

In continental Europe, these measures are primarily required on a seasonal basis, particularly during the warmer months. However, on Madeira Island, local transmission events may occur throughout the year. Improving health literacy and encouraging compliance with preventive behaviours among all citizens will be essential to mitigate the introduction of arboviruses into previously unaffected areas [4]. Strategies to strengthen preparedness, public awareness, transmission prevention, climate resilience and vector control are key to overcoming vulnerabilities worldwide [3].

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Keywords: Arbovirus, Public Health, Environmental change

Biography

Líbia Zé-Zé (PhD in Molecular Biology) has been a researcher at the National Health Institute Doutor Ricardo Jorge (INSA), specifically at the Centre for Vectors and Infectious Diseases Research (CEVDI), since 2006. She is responsible for the molecular diagnosis of vector-borne viruses at the INSA National Reference Laboratory for Vector-Borne Diseases. Her research focuses on the molecular identification and genomic characterisation of vectors and vector-borne viruses, as well as the epidemiological surveillance of these viruses. Through her work, she aims to contribute to advancements in the field of vector-borne viruses and public health preparedness. She is an active member of the national entomological surveillance network (REVIVE). At INSA, she is involved in student's supervision and teaching vector-borne viral diseases in master's programmes and postgraduate classes, as well as in public health emergency response activities (as the INSA Emergency Response Team for SARS-CoV-2 diagnostics during the pandemic).

Luís Malheiro

Local Health Unit of Gaia and Espinho, Portugal
Department of Medical Sciences, University of Aveiro, Portugal

The Importance of Real-Time Genomics in Monitoring Antimicrobial Resistance in Healthcare Settings

Biography

Luís Malheiro is an infectious diseases physician at the ULS Gaia–Espinho, where he works in the Department of Infectious Diseases. He was part of the COVID-19 Contingency Service coordination and is a guest lecturer at the Faculty of Medicine of the University of Porto, and at the University of Aveiro. His work includes clinical research, multiple publications and participation as investigator in clinical trials in infectious diseases.

Luís Monteiro

Department of Medical Sciences, University of Aveiro, Portugal; Egas Moniz Health Alliance

AI, Health & Science: Building a Secure and Ethical Future

Artificial intelligence in health care requires development and deployment processes that are scientifically robust, secure, and ethically grounded. Using the AI development pipeline—problem selection, data collection, outcome definition, algorithm development, and post-deployment evaluation—as a structural framework, it becomes clear that each stage introduces potential sources of bias capable of undermining performance, safety, and equity. Evidence from medical imaging, emergency decision-making, and clinical text analysis shows that models often learn and amplify human-generated and structural biases, including systematic underdiagnosis in underserved populations and detectable racial cues embedded in clinical documentation and imaging. These findings highlight the importance of rigorous dataset design, transparent labelling practices, and outcome definitions that separate descriptive from normative judgements.

Further work on improved metrics and fairer modelling approaches illustrates how unexplained disparities can be identified and addressed in populations historically affected by unequal care.

Insights from other safety-critical sectors, underline the value of governance structures, scientific transparency, diversity in data and teams, and robust monitoring after deployment. Embedding ethical considerations throughout the entire development pipeline strengthens scientific practice and supports the creation of AI systems that are safer, fairer, and more effective in health care. Achieving trustworthy AI depends on the combined efforts of clinicians, researchers, engineers, regulators, and patients, aligned around a shared commitment to quality, equity, and accountability.

Keywords: Artificial Intelligence; Health Equity; Bias

Biography

Luís Monteiro is a Family Physician with a strong commitment to teaching. Holding a PhD in Medicine, he is an Invited Associate Professor in the Department of Medical Sciences at the University of Aveiro. He is also a researcher at Egas Moniz Health Alliance (EMHA). As manager of a Family Health Unit in Aveiro, Portugal, he combines leadership with a collaborative team approach to deliver high-quality patient care. With competence in Health Services Management, he recently completed the course AI in Health Care: From Strategies to Implementation (Harvard Medical School Executive Education), strengthening his ability to integrate artificial intelligence into patient-centred healthcare. He is committed to bridging clinical practice, research and innovation.

Luís Ruano

Local Health Unit of Entre Douro e Vouga, Santa Maria da Feira, Portugal
Department of Medical Sciences, University of Aveiro, Portugal

Redefining Dementia Care: New Approaches for Diagnosis and Treatment

Biography

Luis Ruano is a neurologist at the Entre Douro e Vouga Hospital Center, where he is the head of the Research and Clinical Trials Unit and the Cognition and Dementia Unit. He is a researcher at EPIUnit-ISPUP and Invited Professor at the University of Aveiro and the Faculty of Medicine of the University of Porto. His work focuses on understanding and modifying the natural history and the determinants of cognitive deterioration in neurodegenerative diseases, improving early and accurate identification of cognitive deficits through longitudinal and translational approaches.

Mário-Gomes Pereira

Sorbonne University, Inserm, Institut de Myologie, Centre de Recherche en Myologie, Paris, France

Rethinking brain disease in myotonic dystrophy: it's not all about neurons

Sandra O. Braz, Diana M. Dincã, Gabriele Ordazzo, Paul Magneron, Géraldine Sicot, Aline Huguet-Lachon, Geneviève Gourdon and Mário Gomes-Pereira

Myotonic dystrophy type 1 (DM1) is a multisystemic disorder primarily defined by its skeletal muscle involvement. The disease is caused by a CTG repeat expansion in the DMPK gene, resulting in toxic CUG-expanded transcripts that disrupt RNA metabolism. This mechanism underlies typical muscular symptoms, such as myotonia. Over recent years, several therapeutic strategies (most notably antisense oligonucleotides, RNA-targeting approaches and small-molecule modulators) have entered early clinical evaluation, reflecting substantial momentum toward treating muscle pathology. Yet DM1 extends far beyond muscle. Cognitive deficits, excessive daytime sleepiness, apathy and behavioural alterations are common and affect patients' autonomy and quality of life. These central manifestations remain poorly understood. The limited mechanistic insight into CNS involvement contrasts sharply with therapeutic progress in muscle, highlighting the need to decipher how RNA toxicity perturbs brain function.

Brain homeostasis depends on the coordinated actions of specialised neurons and glial cells. Using a transgenic mouse model that preserves physiological expression of an expanded DMPK transgene, we investigated how DM1 RNA toxicity affects distinct CNS cell types. We uncovered marked glial vulnerability, characterised by impaired astrocyte ramification, delayed myelination in vivo, and defective morphology, adhesion and migration in primary cultures. These phenotypes were accompanied by pronounced spliceopathy of cytoskeleton-related transcripts in astrocytes and oligodendrocytes, revealing a shared molecular signature of impaired terminal differentiation. Our findings suggest that glial dysfunction disrupts neuronglial communication and contributes to altered neuronal physiology.

By shifting focus from neurons to the often-overlooked glial compartment, our work provides new mechanistic insight into DM1 brain pathology. Importantly, it underscores the need for therapeutic strategies targeting both neuronal and non-neuronal cells to alleviate neuropsychological symptoms. Ultimately, our results will help shape future CNS-focused treatments and improve patient prognosis.

Keywords: Myotonic dystrophy, RNA, Glia

Biography

Mario Gomes-Pereira is a molecular neurogeneticist specialising in myotonic dystrophy type 1 (DM1) and trinucleotide repeat expansion disorders. After a Biochemistry degree in Porto, he completed his PhD at the University of Glasgow on genomic instability mechanisms. Supported by a Marie Skłodowska-Curie Fellowship, he moved to Paris and was later recruited by Inserm, where he is now Research Director. He leads the group “RNA Toxicity and Brain Cell Communication” at the Myology Research Centre, investigating the molecular and cellular bases of DM1 brain dysfunction. He coordinates three national research consortia and a large MSCA Doctoral Network, and serves as co-chair of the International Myotonic Dystrophy Consortium (IDMC).

Miguel Castelo-Branco

CIBIT, University of Coimbra, Coimbra, Portugal

Current Challenges in Translational and Clinical Neuroscience

Biography

Miguel Castelo-Branco is a Full Professor at the University of Coimbra and Director of CIBIT, with a career dedicated to neuroscience and biomedical imaging. Trained at the Max-Planck Institute for Brain Research, he has led major research institutes, published in top journals, and received awards such as the BIAL Award in Clinical Medicine in 2022. His work spans cognitive neuroscience, functional brain imaging and translational research with strong interdisciplinary impact.

Miguel Gonçalves

School of Medicine, University of Porto, Porto, Portugal

The complexity of Patients on Prolonged Mechanical Ventilation: From Hospital to Home-based Respiratory Care

Biography

Miguel Gonçalves is a professor at the University of Porto's Faculty of Medicine and a physiotherapist at Centro Hospitalar de São João. He was the first Portuguese expert invited by the European Respiratory Society to lead a CME-online "Learn from the experts" module, focused on cough assistance in neuromuscular disease. With extensive publications and over 160 international lectures, he is recognised for advancing respiratory physiotherapy and clinical education.

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Odete A. B. da Cruz e Silva

Department of Medical Sciences, University of Aveiro, 3810-193 Aveiro, Portugal
Neurosciences and Signalling Group, NeuroSinal, Institute of Biomedicine (iBiMED), 3810-193 Aveiro, Portugal

The Role of Retinoic Acid and Metals towards Alzheimer's Disease Therapeutic Strategies

Alzheimer's disease (AD) remains a multifactorial disorder in which amyloid-β accumulation, tau dysregulation, mitochondrial impairment, and neuroinflammation interact to drive progressive cognitive decline. Two mechanistic domains receiving renewed attention are retinoic acid (RA) signalling and metal homeostasis—both of which influence key pathways in proteostasis, oxidative balance, and synaptic function.

Our work demonstrates that selective activation of retinoic acid receptors (RARs) offers dual neuroprotective actions. In cellular models of AD, RAR stimulation restores mitochondrial morphology, reduces oxidative stress, and normalizes metabolic activity. In parallel, RAR activation shifts amyloid precursor protein (APP) processing toward non-amyloidogenic pathways, reducing Aβ secretion in both wild-type and APP-mutant cells. These findings position retinoid signalling as a promising avenue to simultaneously counter metabolic vulnerability and amyloid burden.

Metal biology represents a second, clinically significant layer of AD pathology. Dysregulation of zinc, copper, and iron contributes to oxidative injury, altered APP cleavage, tau hyperphosphorylation, and impaired clearance mechanisms. Building on earlier observations of zinc's modulatory effects on protein aggregation, our group evaluated zinc oxide nanoparticles (ZnO-NPs) as a controlled Zn-delivery system. ZnO-NPs reduced aggregate formation in neuronal cells, yet unexpectedly suppressed PP1 and PP2A activity—enzymes central to maintaining physiological tau and APP phosphorylation. This dual effect highlights the therapeutic potential and risks of metal-based interventions: while restoring metal balance may mitigate aggregation and oxidative stress, excessive or mis-targeted delivery can inadvertently promote AD-like molecular changes.

Taken together, these findings reinforce the need for therapeutic strategies that integrate metabolic, proteostatic, and metal-regulatory mechanisms. RA-based signalling modulators and precision-tailored metal interventions hold translational promise, but will require careful calibration to avoid tipping physiological systems into further imbalance. This multimodal perspective may help bridge emerging molecular insights with the practical needs of clinical management in AD.

Keywords: Retinoic Acid; Metal Homeostasis; Alzheimer's Therapeutics

Biography

Odete da Cruz e Silva heads the Neuroscience and Signalling Group at the University of Aveiro, leading research in signal transduction therapeutics, protein phosphorylation, Alzheimer's disease, biomarkers, and neuronal regeneration. She coordinates the primary care–based Cohort and a recently created diabetes cohort. With over 150 publications and participation in numerous national and European projects, her work spans award-winning initiatives. Formerly at the University of Dundee and Rockefeller University, where she worked with Nobel Laureate Prof. Paul Greengard, she helped uncover key mechanisms in APP phosphorylation, factors contributing to Abeta production, and novel AD diagnostic strategies. She is also an entrepreneur, co-founding EUVC and Axodynamics.

Olivier Lambercy

Rehabilitation Engineering Laboratory, Department of Health Sciences and Technology, ETH Zurich, Switzerland

Robot-assisted neurorehabilitation: from clinic to home to maximise therapy dose

Neurorehabilitation after stroke faces many open challenges due to the increasing number of patients, the limited number of healthcare professionals and the raising healthcare costs, which ultimately impacts the amount of therapy patients receive. However, there is growing evidence that high-dose high intensity therapy is beneficial, even long after stroke [1,2]. This raises a crucial question: how can we deliver higher therapy doses without placing additional strain on an already fragile healthcare ecosystem? Simple technology-based solutions could enable a paradigm shift in stroke neurorehabilitation models currently heavily relying on hospital stays/visits [3]. In our work, we focus on developing and clinically evaluating complementary robot-assisted technologies to support upper-limb rehabilitation across the continuum of care, from the hospital bedside to the patient's home. Specifically, we developed ReHandyBot [4], a tabletop end-effector robot designed to support motor, somatosensory and cognitive training. Through several clinical trials, we demonstrated that the device can be used fully independently in both clinical and home environments, and that it can help increase therapy dose by more than 150% [4,5]. We are also exploring how to combine such technologies with AI-driven digital approaches to coach patients, enhance motivation to engage in therapy, and accelerate the adoption of advanced technologies in neurorehabilitation.

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Keywords: Neurorehabilitation; Robot-assisted therapy; Home-based rehabilitation

Biography

Olivier Lambercy is Adjunct Professor in the Department of Health Sciences and Technology at ETH Zurich, and the co-director of the Rehabilitation Engineering Laboratory. His research focuses on the development and clinical application of novel technological solutions to improve rehabilitation after neurological injuries. He is a board member of the International Consortium for Rehabilitation Robotics, a principal investigator at the Singapore-ETH Center as part of the Future Health Technologies program, and an Associate Editor for the Journal of Neuroengineering and Rehabilitation since 2017.

Ricardo Queirós

Instituto Politécnico do Porto, Porto, Portugal

From Algorithms to Engagement: Gamified Intelligence in Digital Health

Biography

Ricardo Queirós holds a PhD in Computer Science and is an Assistant Professor of Informatics at the School of Media Arts and Design and the School of Health, at the Polytechnic Institute of Porto, teaching web and mobile programming and IoMT. His research at INESC TEC's CRACS center spans generative AI, gamification, interoperability and digital health. He coordinates the Distance Learning Office of the Pedagogical Innovation Center, organizes the International Computer Programming Education Conference (ICPEC), and has authored over 200 books and scientific publications.

Health Congress
Congresso de Saúde

12-13 December 2025 | University of Aveiro

Rui Baptista

Local Health Unit Entre o Douro e Vouga, Santa Maria da Feira, Portugal
Department of Medical Sciences, University of Aveiro, Portugal

Advances in Heart Failure Therapy Over the Past Decade

Over the past decade, the therapeutic landscape of heart failure (HF) has undergone a paradigm shift, moving from a stepwise sequencing of neurohormonal blockade to a horizontal, multi-pathway pharmacological strategy. This presentation critically reviews the pivotal evidence that has redefined the standards of care for heart failure with reduced (HFrEF) and preserved ejection fraction (HFpEF).

Ten years ago, management was anchored in the "triple therapy" of RAAS inhibition, beta-blockers, and mineralocorticoid receptor antagonists. The landmark PARADIGM-HF trial disrupted this dogma by establishing Angiotensin Receptor-Neprilysin Inhibitors (ARNI) as a cornerstone of therapy. However, the most transformative advance has been the repurposing of Sodium-Glucose Cotransporter-2 (SGLT2) inhibitors. The DAPA-HF and EMPEROR-Reduced trials demonstrated that these agents, independent of glycemic status, significantly reduce cardiovascular mortality and hospitalization, cementing the concept of the "Four Pillars" of Guideline-Directed Medical Therapy (GDMT).

Furthermore, the last decade marked the end of therapeutic nihilism regarding HFpEF. Recent trials, including EMPEROR-Preserved and DELIVER, provided the first unequivocal evidence of hospitalization benefit in this phenotype, while the STEP-HFpEF program highlighted the role of GLP-1 receptor agonists in the obesity-HFpEF phenotype. We will also address the increasing recognition of specific etiologies, such as Cardiac Amyloidosis, and the impact of Tafamidis.

Beyond core pharmacotherapy, significant strides have been made in device and structural interventions. These include Transcatheter Edge-to-Edge Repair (TEER) for secondary mitral regurgitation and the development of durable, magnetically levitated Left Ventricular Assist Devices (LVADs), now consolidated options for destination therapy in advanced HF. Advances in multimodal imaging, specifically cardiac magnetic resonance and 2D speckle tracking echocardiography for quantifying myocardial strain, and its integration with artificial intelligence models, have become instrumental for deep phenotyping and risk stratification. Furthermore, the evolving management of group 2 pulmonary hypertension through optimized hemodynamics and remote monitoring has become central to complex HF care.

The challenge now transcends discovery. The current imperative is to transition towards precision medicine, leveraging deep phenotyping to mitigate residual risk and tailor interventions to the individual biological profile.

Keywords: Heart Failure; Pharmacotherapy; Pulmonary Hypertension.

Biography

Rui Terenas Baptista, MD MSc PhD FESC, is a Consultant in Cardiology and Director of the Cardiology Department at the ULS of Entre o Douro e Vouga. He holds appointments as a Visiting Full Professor at the University of Aveiro and as a Visiting Assistant Professor at Faculty of Medicine of the University of Coimbra (FMUC). Dr. Baptista is currently the secretary-general of the Portuguese Society of Cardiology. His work encompasses translational research projects on pulmonary vascular disease at iCBR, Coimbra, and clinical research in the fields of heart failure and lipidology. He is the author or co-author of over 100 scientific articles published in national and international journals.

Tiago Meirinho

Director of Rheumatology Department, Local Health Unit Gaia and Espinho
Department of Medical Sciences, University of Aveiro, Portugal

The complexity of Patients on Prolonged Mechanical Ventilation: From Hospital to Home-based Respiratory Care

Biography

Tiago Meirinho is the Director of the Rheumatology Department at ULS Gaia–Espinho and an Invited Assistant at the Faculty of Medicine, University of Porto. He previously contributed to expanding rheumatology services at CHTS. His clinical and research interests focus on psoriatic arthritis, osteoporosis, and the application of risk assessment instruments such as FRAX. Dr. Meirinhos is actively engaged in public and scientific communication and currently serves as Secretary General of the Portuguese Society of Rheumatology.

Tiago Oliveira

ICVS, School of Medicine - University of Minho

Brain regional Susceptibility to Neurodegenerative Disorders

Biography

Tiago Oliveira is an Associate Professor at the School of Medicine, research line coordinator at ICVS, and a neuroradiologist at Hospital de Braga, and president of the Portuguese Society for Neuroscience. His work has uncovered the roles of lipid-signalling pathways in Alzheimer's disease models and expanded his research interests to the study of mood disorders and brain plasticity mechanisms. His current research integrates lipidomics with brain imaging to advance understanding of neurodegenerative conditions.

ORAL COMMUNICATIONS

OC1. Pulse Pressure as a predictor of cardiovascular events in different hypertensive phenotypes

Mariana Santos Silva[1]; Inês Cruz[1]; Carlos Costa[1]; Tiago Aguiar[1]; Ana Faustino[1]; José Mesquita Bastos[1,2]
1 – Local Health Unit Aveiro Region; 2 - iBiMED

Introduction
Pulse pressure (PP) is an important marker in hypertension research, increasingly recognized for its role in predicting adverse cardiovascular outcomes. The severity of hypertension varies widely among patients, from well-controlled cases to resistant hypertension, which remains a major therapeutic challenge. Understanding these differences is essential for personalized management. Ambulatory Blood Pressure Monitoring (ABPM) is the gold standard for assessing true blood pressure control, providing valuable information beyond office measurements and contributing to more accurate risk evaluation.

Objective
To examine the relationship between pulse pressure and cardiovascular events across different hypertensive subgroups, assessing its predictive value for personalized cardiovascular risk stratification.

Methods
This single-center cross-sectional study included 898 hypertensive patients who underwent ABPM. Parametric tests were applied for normally distributed variables, including Independent-Samples T test, Chi-square test, and Kaplan–Meier survival analysis with log-rank testing, using SPSS. Patients were categorized into four groups according to office blood pressure, ABPM findings, and number of antihypertensive drugs: Ambulatory Resistant Hypertension (ARH), Ambulatory Non-Resistant Hypertension (ANRH), White Coat Uncontrolled Resistant Hypertension (WCURH), and Controlled Hypertension (CH). A pulse pressure threshold of 60 mmHg was used to compare subgroups, based on prior clinical and epidemiological studies.

Results
Pulse pressure differed significantly across hypertensive categories, with the lowest value in the controlled hypertension group (46.7 ± 8.4 mmHg) and the highest in the resistant hypertension group (60.9 ± 12.2 mmHg). The composite endpoint included stroke, acute coronary syndrome, heart failure hospitalization, acute peripheral artery disease, and death. Kaplan–Meier analysis showed a significantly higher rate of cardiovascular events in the ARH and ANRH groups when pulse pressure exceeded 60 mmHg.

Conclusion
In resistant hypertension and ambulatory non-resistant hypertension, elevated pulse pressure was strongly associated with adverse cardiovascular events. These findings highlight pulse pressure as a simple and valuable prognostic marker, supporting its role in individualized cardiovascular risk assessment.

Keywords: Pulse pressure, Resistant hypertension, Risk stratification

OC2. Hospital readmissions after acute coronary syndrome: clinical profiles analysis

Ana Jorge Gonçalves[1]; Mariana Lobo[2]; Sara Esteves[1]; Daniela Duarte[1]; Alberto Freitas[2]; José Afonso Rocha[3,4]

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Introduction

Ischemic heart disease(IHD) is a leading cause of morbidity, mortality and economic burden[1]. Despite lower prevalence in Portugal than the European average, unplanned hospital readmissions remain challenging[2,3]. Understanding factors influencing readmission and patient trajectories is key to optimizing care. This study aimed to identify distinct IHD patient profiles using clinical, demographic and care-process data.

Methods

Adults admitted to ULS São João with primary diagnosis of IHD(ICD-10-CM: I20X-I25X) and discharged between January 2016 and December 2024 were included. All-cause admissions within 1-year before and after index episode were analyzed. Patient subgroups were identified using Partitioning Around Medoids clustering with Gower's dissimilarity[4,5], based on index admission features and 1-year hospitalization history. The optimal cluster number maximized average silhouette width(ASW). Cluster differences were assessed using Kruskal-Wallis and Chi-square tests($p<0.001$). Readmission-free survival(RFS) at 30-days and 1-year were estimated using Kaplan-Meier method.

Results

A total of 9,580 patients were included(mean age 66±12 years, 75.4% male, 80.9% from Porto). Main diagnoses were NSTEMI(26.7%), chronic coronary syndrome without angina(CCS, 24.0%) and STEMI(23.9%). Most had no or mild comorbidity(90.2%), were admitted via emergency(52.8%), discharged to outpatient care(87.6%), and 5.0% died in hospital. Clustering identified three significantly different groups(ASW=0.45). Cluster 1(n=4,923) comprised younger patients(mean 63 years) with the lowest comorbidity burden, mainly STEMI or NSTEMI emergencies, showing intermediate RFS(30-days: 97.1%, 1-year: 83.3%). Subsequent admissions within 1-year were mostly CCS. Cluster 2(n=1,701) included the oldest(mean 73 years), most comorbid patients, NSTEMI emergencies, with the highest prior hospitalization rate and in-hospital mortality(13.4%), and the lowest RFS(30-day: 92.9%, 1-year: 70.1%). Cluster 3(n=2,955) consisted mainly of CCS

patients undergoing CABG, with the largest proportion of planned admissions and residents outside Porto(41%). The high RFS(30-day: 98.0%, 1-year: 90.5%) likely reflects continuity of care in other institutions.

Conclusion

Distinct IHD patient profiles showed differing readmission risks and trajectories, informing targeted preventive and management strategies.

Keywords: Ischemic Heart Disease, Clinical Profiles, Hospital Readmission

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Biography of presenting author

I am Ana Jorge Gonçalves and I hold a PhD in the field of Neuroimaging from The University of Manchester and an MSc in Physics Engineering from the Universidade de Aveiro. My work spans the full research cycle, from study design and project management to health data analysis and medical writing. I enjoy translating quantitative findings into evidence that informs clinical decision-making through interdisciplinary collaboration. I am currently a postdoctoral researcher at the Faculdade de Medicina da Universidade do Porto (FMUP).

OC3. The restrictive illusion: why spirometry alone can mislead

André Veloso [1]; Elisabete Patrício [2]; Manuel Veloso [3]; Isabel Ruivo [4]; Ulisses Brito [5]

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Introduction

There is low diagnostic accuracy of the restrictive spirometric pattern to identify true pulmonary restriction. This knowledge is based on patients referred for spirometry and total lung volume determination by plethysmograpy.1,2,3 Restrictive lung function may indicate various underlying diseases.1,2,3 The aim of this study was to evaluate patients with PRISm or restrictive spirometry pattern in spirometry and identify true restrictive lung function (total lung capacity [TLC] < lower limit of normal [LLN]) according to reference values by the Global Lung Function Initiative (GLI) in a wide age-ranged, general population sample.

Methods

A general population sample (n = 220, age 11–90 years, smokers 38%) with proper dynamic spirometry and TLC measurements, was included. Prevalence of PRISm, restrictive spirometry pattern and TLC < LLN were evaluated: PRISm (FVC< LLN, FEV1< LLN and FEV1/FVC ≥ LLN), restrictive pattern in spirometry (FVC< LLN and FEV1/FVC ≥ LLN) and true restrictive lung function [TLC < LLN, according to GLI by plethysmograpy).

Results

The prevalence of PRISm or restrictive spirometry patterns was 22,3% according to ERS/ATS criteria. The prevalence of restrictive lung function (TLC < LLN) was 14.1% (6,8 mild, 6,8 moderate and 0,5 severe). After repeat spirometry and plethysmography, 54.1% of the patients presented normal lung function, while 15% were reclassified as having an obstructive ventilatory pattern.

Conclusions

Restrictive ventilatory patterns can be misclassified when based solely on spirometry. More than half of patients initially labeled as having restriction showed normal lung function upon full lung volume assessment, and a notable proportion were reclassified as obstructive.2,3 These findings highlight the importance of performing complete lung function testing, including plethysmography, to avoid diagnostic misinterpretation and to ensure accurate clinical management3,4,5.

Keywords: PRISm; Restrictive spirometry pattern; plethysmograpy;

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Biography of presenting author

Mestrado Integrado em 2019, ICBAS-Porto

Formação Geral em 2020 no Hospital São João

Interno de Formação Específica 5º ano Pneumologia- ULS Algarve Hospital de Faro

OC4. Mapping the burden of cough triggers and their impact on quality of life in chronic respiratory disease

Ana Sofia Grave[1,2,3,4]; Diogo Tecelão[4]; Vânia Fernandes[5]; Alda Marques[1,2]; Ana Oliveira[1,2]

1 - Respiratory Research and Rehabilitation Laboratory (Lab3R), School of Health Sciences (ESSUA), University of Aveiro, Aveiro, Portugal; 2 - iBiMED – Institute of Biomedicine, University of Aveiro, Aveiro, Portugal; 3 - Department of Medical Sciences, University of Aveiro, Portugal; 4 - C-mo Medical Solutions, Lisboa, Portugal; 5 - Pulmonology Department, Unidade Local de Saúde da Região de Aveiro, Aveiro, Portugal

Biography of presenting author

Ana Sofia Grave is a physiotherapist and a third-year PhD Student in Rehabilitation Sciences at the University of Aveiro. Her research, funded by the Fundação para a Ciência e Tecnologia, focuses on the "COUGH-LESS" project, which aims to develop anon-pharmacological strategies for managing chronic cough in Interstitial Lung Disease.

OC5. Prevalence os sentinel fragility vertebral fracture in patients with hip fracture - a retrospective study

Inês Genrinho[3,4,5]; Cátia Machado[1]; Alina Humenyuk[2]; Nuno Pais[1,3]; Anabela Barcelos[3,5]

1 - Orthopaedic Department, Unidade Local de Saúde da Região de Aveiro, Aveiro, Portugal; 2 - Department of Mathematics, University of Aveiro, Portugal.; 3 - Centro Académico Clínico Egas Moniz Health Alliance, Portugal; 4 - Rheumatology Unit, Unidade Local de Saúde Viseu Dão Lafões, Viseu, Portugal; 5 - Rheumatology Department, Unidade Local de Saúde da Região de Aveiro, Aveiro, Portugal

Introduction

Vertebral fragility fractures (VFF) are the most common site for osteoporotic fracture, although they are frequently undiagnosed. Previous investigations showed that individuals with VFF are at a significantly increased risk of suffering hip and further vertebral fractures. For these reasons, early recognition of VFF and the institution of treatment can improve morbimortality in patients with osteoporosis. Objectives: To determine the prevalence of previous VFF in patients with fragility hip fracture and to characterize VFF location, type, and severity.

Methods

A retrospective study involved patients ≥50 years-old with fragility hip fractures admitted to our FLS between 2019 and 2023. Those who had a thoracic and/or lumbar spine radiological imaging available in the previous 5 years were included. Demographic, lifestyle behaviours, and FRAX data were collected. An independent, blinded rheumatologist and orthopaedist, reviewed the images for VFF and quantified severity using Genant's semiquantitative method. Data was analysed using RStudio.

Results

A total of 357 hip fracture patients were screened for eligibility. 310 of these patients had radiological imaging available for analysis. The mean age was 81.0 (SD±9.0) years-old and 83.9% were women. Radiological VFF was present in 28.1% of patients, but only 12.3% were previously diagnosed. The lumbar spine was most frequently affected (42.5%), with wedge-type fractures in 73.6% and 64.4% classified as severe. Significant differences were found between patients with and without VFF regarding to age (p=0.009) and FRAX score for major (p=0.000) and hip (p=0.000) fracture risk.

Conclusions

More than a quarter of hip fracture patients have previous VFF. Lumbar spine was the most frequently involved location, wedge fracture the most common fracture type, and the majority were

severe. These findings highlight that VFF is frequently under-recognized and delays proper osteoporotic treatment. Investigation, diagnosis, and the implementation of timely treatment for VFF can prevent future fragility fractures.

Keywords: Osteoporosis, Vertebral Fragility Fracture, Hip Fragility Fracture

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Biography of presenting author

Rheumatology resident at ULS Viseu Dão Lafões, with a particular interest in Chronic Pain – currently pursuing a Postgraduate Degree in Pain Medicine at FMUP (2024/2025)

Recipient of one international award – 2022 ESCEO-IOF Young Investigator Award – and four national awards for oral presentations at scientific conferences.

First author in 2 and co-author in 2 international publications.

OC6. Decoding pDC-mediated fibrosis: ER stress and mechanosensing as dual drivers in systemic sclerosis

Mariana D. Machado[1]; Carolina Mazeda[2]; Catarina R. Silva[2]; Philippe Pierre[3]; Eduardo Dourado[2]; Catarina R. Almeida[1]

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Systemic sclerosis (SSc) is a rare systemic autoimmune rheumatic disease (SARD) characterised by immune dysregulation, vascular dysfunction, and fibrosis of the skin and internal organs1. Among SARDs, SSc has one of the highest morbidities and mortality rates, mainly due to interstitial lung disease, which frequently leads to extensive pulmonary fibrosis2. Plasmacytoid dendritic cells (pDCs) are innate immune cells that play a key role in SSc pathogenesis. They infiltrate affected tissues, drive the overproduction of type I interferons (IFN-I), and their depletion alleviates fibrosis in murine models3. Yet, how pDCs sense and respond to mechanical changes in fibrotic tissues and contribute to fibrosis remains largely underexplored. Interestingly, pDCs from SSc patients exhibit dysregulated endoplasmic reticulum (ER) stress, which is linked to fibroblast activation2. Moreover, recent evidence shows that increased stiffness inhibits IFN-I production by pDCs under TLR stimulation4, but it is still unclear how this response behaves under ER stress conditions or during pDC–fibroblast crosstalk. To explore this, a pDC cell line (CAL-1) and a lung fibroblast cell line (IMR-90) were co-cultured on substrates with different stiffnesses, replicating healthy and fibrotic tissue. ER stress was induced using HA15, and gene expression was assessed by RT-qPCR. In CAL-1 cells, HA15 increased IFN-I expression at both stiffness levels, an effect amplified by co-stimulation with a TLR7 agonist. In fibroblasts, ER stress inhibited α-smooth muscle actin expression, but this effect was reversed in the presence of pDCs. HA15 slightly increased fibronectin in fibroblasts alone, which became more pronounced in co-culture with pDCs. Stiffer substrates further enhanced both IFN-I and extracellular matrix-related gene expression. These findings suggest that ER stress in pDCs contributes to fibrosis progression by promoting IFN-I production and fibroblast activation, modulated by the mechanical properties of the microenvironment. Understanding these mechanisms may uncover novel therapeutic targets to mitigate fibrosis in SSc.

Keywords: Fibrosis, Systemic Sclerosis, plasmacytoid Dendritic Cells

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Biography of presenting author

I hold a BSc in Biomedical Sciences and an MSc in Molecular Biomedicine from the University of Aveiro. I am currently a PhD student in Biomedicine at iBiMED, UA, investigating the role of plasmacytoid dendritic cells in fibrosis progression in systemic sclerosis. My project takes a multidisciplinary approach to bridge fundamental and clinical research, focusing on ER stress, mechanosensing, and fibroblast–pDC crosstalk. I have contributed to several R&D projects, was awarded two research fellowships, and currently hold an FCT PhD fellowship. I have co-authored scientific papers and presented my work at national and international meetings.

OC7. A flexible wearable sensor for passive respiratory monitoring: validation in healthy adults

Bernardo A. Vicente[1]; Raquel Sebastião[2,3]; Alda Marques[4]; Vitor Sencadas[1]

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Biography of presenting author

First-year PhD student in Biomedical Engineering at the University of Aveiro (UA), focusing on wearable sensors for respiratory monitoring. Holds a BSc in Biomedical Engineering and an MSc in Materials Engineering. His master's dissertation led to a provisional patent request (PT119103), laying the foundation for his ongoing research. His expertise spans biomaterials, signal processing, and machine learning. Furthermore, he has presented his work at several conferences and published a review paper in Advanced Functional Materials. He currently teaches "Physiological Systems Monitoring" laboratory classes at UA and is committed to developing medical technologies with meaningful impact.

OC8. Aging promotes the pathoadaptive evolution of gut bacteria

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Laboratory-raised mice live approximately seven times longer and healthier lives than their wild counterparts, primarily due to a standardized healthy diet and minimal exposure to environmental stressors. Aging is linked with increased inflammation, gut permeability, and gut microbial dysbiosis. Collectively, these shape microbiota evolution and may contribute to the enrichment in pathobiont frequency observed in old age. Alternatively, the decline in colonization resistance due to age-associated immunosenescence could create favorable conditions for pathobiont invasion.

Here [1], we tested whether aging under controlled and healthy conditions plus a restricted exposure to external microorganisms, could prevent the occurrence of age-related pathobionts.

We have used three age groups: young, old and very old mice treated with streptomycin and colonized with a commensal strain of Escherichia coli, whose adaptive pattern was inferred from whole genome sequencing of the evolving populations.

The adaptive evolution of Escherichia coli in the guts of mice of advanced age revealed several mutations typical of bacteria colonizing young mice, which were not selected in old animals. The higher proximity between young and advanced age was further supported by the metabolome of these animals, highlighting a greater convergence between the two age extremes. However, mutations acquired exclusively in the old and very old were mainly pathoadaptive, tuning the metabolism to oxygen and iron availability, hypermotility, and biofilm formation.

In conclusion, while the evolutionary patterns in the guts of very old mice suggest youth-like features that could relate to longevity, there is also an increased selection for pathoadaptive traits in very old age. These findings suggest that a decrease in colonization resistance alone does not explain the higher abundance of age-related pathobionts. Future research should determine whether these observations extend broadly across gut commensals or predominantly reflect the high metabolic flexibility of E. coli.

Keywords: Aging; microbiota; adaptive evolution

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Biography of presenting author

After completing a degree in Microbiology and Genetics, ASousa earned a PhD in Molecular Evolution at the University of Lisbon in 2008, where she used experimental phylogenies to test phylogenetic inference methods. As a Postdoctoral Researcher at the Instituto Gulbenkian Ciencia (IGC) in 2008, ASousa studied microbial adaptation.

In 2016 ASousa became a principal investigator at the Institute of Biomedicine (University of Aveiro) and started her research group. The main research focus of the group in on the interplay between gut microbiota and ageing and in the airway microbiota and chronic obstructive pulmonary disease (COPD).

OC9. Role of fiberoptic endoscopic evaluation of swallowing in guiding enteral feeding: retrospective cohort study

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Introduction

Swallowing is a complex process, and impairment increases the risk of malnutrition, dehydration, and aspiration pneumonia. Fiberoptic endoscopic evaluation of swallowing (FEES) provides a detailed assessment of swallowing biomechanics, including residue, and laryngeal penetration or aspiration. Multidisciplinary teams often perform these procedures separately from the clinicians responsible for the patient's ongoing care. Clinicians lack clear guidance on optimal assessment frequency, interpretation of findings, and recommendations for enteral feeding, which may lead to conservative or subjective decisions.

Objective

To determine whether FEES reduces the recommendation for enteral feeding in hospitalized patients with suspected oropharyngeal dysphagia.

Methods

A retrospective cohort study analysed 233 patient records from 2019 to 2024, collecting age, sex, clinical diagnosis, presence of tracheostomy, and need for enteral feeding before and after FEES. Clinicians classified diagnoses into five categories: oncological, neurological, surgical/trauma, critical, and other. Records with incomplete data were excluded. Changes in enteral feeding status were assessed using McNemar's test. Multivariable logistic regression analysis for sex, diagnosis, tracheostomy, and prior enteral feeding. Results appear as adjusted odds ratios (ORa) with 95% confidence intervals (CI) and p-values, with $p < 0.05$ considered statistically significant. Ethics approval: ULSEDV (23/2022).

Results

Among 233 patients (41% female; mean age 70 ± 15.1 years), 213 had complete data. FEES significantly altered enteral feeding use (McNemar = 16.0; $p = 0.0013$). Prior non-oral nutrition strongly predicted continued or new tube feeding (ORa = 5.22; 95% CI: 2.53–10.78; $p < 0.001$), and oncological diagnosis increased the likelihood of requiring non-oral nutrition (ORa = 3.07; 95% CI: 1.05–8.97; $p = 0.040$). Sex and neurological disease showed no significant association.

Conclusion

FEES influences clinical decision-making regarding non-oral feeding, allowing safe removal of tube feeding devices when function improves and early identification of aspiration risk. These findings highlight FEES's central role in managing hospitalized patients with oropharyngeal dysphagia.

Keywords: Fiberoptic endoscopic evaluation of swallowing, dysphagia, non-oral feeding

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Biography of presenting author

Speech and Language Therapist at ULSEDV, PhD Candidate in Rehabilitation Sciences at University of Aveiro, Vice-President of the Portuguese Society for Swallowing Disorders and Dysphagia

OC10. ATR-FTIR reveals spectroscopic signatures related to improved recovery and healthier status following rehabilitation in spinal cord injury patients

Bárbara M. De Sousa[1]; Marisa Costa[1]; Fátima Gandarez[2]; Margarida Rodrigues[2]; Maria Ribeiro-Cunha[2]; Alexandra Nunes[1]; Sandra I. Vieira[1]

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Objective biomarkers of spinal cord injury (SCI) severity, progression, and recovery are limited and could improve patient stratification and outcome prediction. Attenuated total reflectance Fourier-transform infrared (ATR-FTIR) spectroscopy, used for assessing serum metabolomic changes, can effectively differentiate sera in multiple sclerosis, brain tumors, and Alzheimer's disease studies [1-3]. We evaluated ATR-FTIR's ability to discriminate sera in a longitudinal SCI study, including severity stratification and rehabilitation outcomes.

Sera from 66 traumatic SCI patients at pre-rehabilitation (~2.5 months post-injury), post-rehabilitation (~4 months post-injury), and 1-year post-injury follow-up were analyzed by ATR-FTIR spectroscopy, together with 40 controls. Key spectral regions were assessed: 3050–2800 cm^{-1}, commonly assigned to lipids; 1800–1500 cm^{-1} for protein secondary structures; 1500–900 cm^{-1} for 'fingerprint' (mainly nucleic acids/carbohydrates/proteins).

SCI patients exhibited pre-rehabilitation serum spectroscopic signatures distinct from controls, with motor complete injuries (AIS A+B) inducing more pronounced phenotypes. Upon rehabilitation, serum spectra partially shifted towards control states, particularly in the fingerprint and protein structure regions.

Some rehabilitation-induced changes persisted in the serum metabolome at 1-year post-injury, suggesting durable systemic biochemical shifts upon intensive subacute rehabilitation. Despite some improvements in protein conformation, biochemical remodeling mainly stabilized at follow-up, and recovery trajectories remained incomplete and severity-dependent.

Most importantly, specific spectroscopic peaks of the fingerprint region were consistently associated with groups with improved recovery and better health status. ATR-FTIR serum spectroscopy, particularly at the fingerprint region, may offer a rapid, cost-effective, label-free, objective, and minimally invasive method to monitor clinical alterations in SCI by enabling patient-control discrimination, severity stratification, and recovery monitoring. Multicentric validation and integration with RMN- or MS-based metabolomics may further elucidate mechanistic insights and support precision rehabilitation strategies.

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Biography of presenting author

Bárbara M. de Sousa is a final-year Ph.D. candidate and Euro-BioImaging scientific ambassador with a background in Biomedical Sciences and Biochemistry. Her PhD combines longitudinal omics analyses of serum from spinal cord injury patients with iPSC-derived neuron studies to explore recovery mechanisms. Since 2017, she has collaborated on neuro- and osteoregeneration projects across Portugal, Spain, and Germany. She co-authored 12 peer-reviewed papers in journals like Brain, Advanced Healthcare Materials, and Neural Regeneration Research, delivered over 70 conference presentations, and received five scientific awards. Bárbara is now seeking postdoctoral opportunities abroad to advance neuroregeneration research in interdisciplinary settings.

PITCHES

Pitch1. Sex-specific 17β-estradiol effects on human cardiac microvascular endothelial cells in HFPEF-related inflammation.

Joana Relva-Pinto[1,2]; Cristiana Fernandes[1]; Ana Grego[2]; Ivo Fonseca[2]; Bruno Neves[3]; Adelino Leite-Moreira[2,4]; Marina Dias-Neto[2,5]; Rita Ferreira[1]; Sandra Marisa Oliveira[2]; Rita Nogueira-Ferreira[2]

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Heart failure with preserved ejection fraction (HFpEF) is a multifactorial syndrome that predominantly affects postmenopausal women, with limited treatment options, due to an incomplete understanding of its pathophysiological mechanisms. Coronary microvascular endothelial dysfunction (CMED) constitutes a central event in HFpEF development, driven by systemic inflammation, linked to associated comorbidities. 17β-estradiol (E2) exerts vasoprotective effects by enhancing nitric oxide (NO) bioavailability. Consequently, its postmenopausal decline may contribute to CMED and HFpEF progression, underlying the marked sexual dimorphism in the syndrome's prevalence. This study aimed to investigate how sex differences, particularly those mediated by E2, influence the molecular and cellular mechanisms involved in CMED. To this end, human cardiac microvascular endothelial cells (HCMVECs), derived from male and female donors, were treated with E2 (0, 0.01, 0.1, 1, 10, and 100 nM), either alone or following exposure to tumor necrosis factor-alpha (TNF-α; 20 ng/mL), to model inflammatory stress conditions resembling those in HFpEF. E2 did not affect cell viability under baseline conditions in either sex, but significantly improved viability, under inflammatory conditions, in female-derived cells. Cell proliferation showed a consistent trend toward increase, more pronounced in female HCMVECs, both with and without TNF-α pre-treatment. Following TNF-α stimulation, E2 (0, 0.01, and 0.1 nM) modulated the protein levels of estrogen receptors, with tendencies for higher estrogen receptor-beta and G protein-coupled estrogen receptor-1 levels in female cells and estrogen receptor-alpha levels in male HCMVECs. The same treatment activated signaling pathways related to cell survival and NO bioavailability, with female cells displaying greater activation of endothelial NO synthase and higher B-cell lymphoma-extra large levels, and male cells tending toward higher protein kinase B phosphorylation and Bcl-2 associated X-protein levels. These

findings underscore the importance of incorporating sexual dimorphism into HFpEF research, guiding the design of targeted, sex-specific therapies for this syndrome.

Keywords: Heart failure with preserved ejection fraction, Coronary microvascular endothelial dysfunction, 17β-estradiol

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Biography of presenting author

Joana Relva-Pinto is a Master's student in Biochemistry at the University of Aveiro, specializing in Clinical Biochemistry. In collaboration with the Faculty of Medicine of the University of Porto, her research focuses on the molecular mechanisms underlying microvascular endothelial dysfunction in heart failure with preserved ejection fraction, with particular interest in sex-specific hormonal effects. She has presented her work at both national and international conferences, and she is actively engaged in science communication, event organization, and academic mentoring, contributing to the dissemination and promotion of scientific knowledge within the academic community.

Pitch2. Systemic lipids and obesogenic memory influence on mouse ipscs reprogramming and cardiac differentiation

Carlota Tavares-Marcos[1]; Rafaela Dias[1]; Júlia Tavares E Silva[1]; Carolina Claro[1]; Magda Correia[1]; Bruno Bernardes De Jesus[1]; Sandrina Nóbrega-Pereira[1]

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The discovery of cell reprogramming into induced pluripotent stem cells (iPSCs) provided unprecedent opportunities for aging-associated diseases including cardiac regeneration. Evidence suggest that organisms have the ability to remember the past metabolic environment, as hyperlipidemia, due to epigenetic remodelling resulting in cellular alterations. Despite the importance, the impact of diet-induced obesogenic traits for iPSCs-cell based cardiac regeneration has not been explored.

We submitted animals to high-fat diet (HFD) for 10 weeks, which resulted in a significant increase in body weight, serum glucose, and triglyceride levels compared to control (CD) diet. Four-factor reprogramming (OKSM) of adult ear fibroblasts isolated from the animals revealed decrease efficiency of iPSCs generated from HFD as compared to CD. However, after expansion, HFD-derived iPSCs showed increase proliferation and NANOG expression and several deregulated metabolic parameters, as more lipid droplets, lower TMRE labelled mitochondria and increase lactate production. Moreover, HFD-derived iPSCs present epigenetic remodelling at the level of histone acetylation and methylation marks and decreased DNA methylation in enrichedd CpG-rich genomic regions, as determined by RRBS. Importantly, HFD-derived iPSCs produce teratomas with representation of the three germ layers but a clear reduction in mesoderm-derived tissues. In vitro differentiation of HFD-iPSCs into embryoid-bodies derived cardiac lineage present a clear reduction in beating foci, lower levels of cardiac markers and higher expression of pluripotent genes.

Our findings indicate that short exposure to systemic lipids induces a functional long-term obesogenic memory that impacts cell reprogramming and differentiation of mouse iPSCs with relevance for cell-based cardiac regeneration.

Keywords: cell reprogramming, cardic differentiation, obesogenic memory

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Pitch3. Development of a new oxygen flowmeter and its application in respiratory rehabilitation programs

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For decades, hospitals have relied on traditional oxygen flowmeters to control oxygen delivery to patients1. However, these flowmeters often show poor accuracy, with actual flow rates ranging from 48% to 185% of the nominal values displayed on the device2. Since the COVID-19 pandemic, there has been a growing need for more accurate and automated equipment to improve the efficiency of oxygen management.

A digital flowmeter based on thermal mass flow technology was developed to operate within hospital oxygen networks and comply with ISO 15002:2023 standards. In addition, control software was developed in accordance with IEC 62304:2006. A measurement system analysis was performed by comparing the digital flowmeter with conventional flowmeters using a calibrated flow analyzer (TSI Certifier™) and applying the same testing protocol to both. The digital flowmeter was also subjected to a performance evaluation using a vital signs simulator (Riegel 370A930) to assess its autonomous response.

A digital flowmeter suitable for hospital use was successfully developed. It demonstrated an accuracy of 1% compared with 18% for conventional flowmeters. In addition to direct control via the device's screen, the digital flowmeter can be operated through medical prescriptions and interfaces with a central system that receives multiple biosignals, including peripheral oxygen saturation, heart rate, and respiratory cycle.

The digital flowmeter provides precise control and automation integrated with biosensors, opening a new era of precision respiratory rehabilitation programs. Further research is required to evaluate the long-term performance of the proposed model in real-world clinical environments.

Keywords: Respiratory Rehabilitation, Oxygen, Medical device

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This work is supported by national funds from FCT - Fundação para a Ciência e a Tecnologia, I.P., under the project UID 4501 - Institute of Biomedicine - Aveiro.

Biography of presenting author

Medical doctor at the Centro de Reabilitação do Norte in Vila Nova de Gaia, where he coordinates the Cardiopulmonary Rehabilitation and Exercise Reconditioning Unit. He has a particular interest in the care of complex respiratory patients and in medical technologies that support rehabilitation and functional recovery. Currently, he is a PhD student in Rehabilitation Sciences at the University of Aveiro.

Pitch4. Genetic variants underpinning lung function decline in the lifelines cohort

Rui Marçalo[1,2,3,4]; Corry-Anke Brandsma[4,5]; Alda Marques[2]; Gabriela Moura[1]; Maarten Van Den Berge[3,4]; Judith Vonk[4,6]; Maaike De Vries[4,6]

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Pitch5. Navigating the treatment pathway for osteoporotic vertebral fractures: predictors of surgical decision-making

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Introduction

Osteoporotic vertebral fractures (OVFs) are among the most debilitating consequences of osteoporosis, with significant impacts on morbi-mortality, and quality of life. While most patients experience pain relief within 3–6 weeks with conservative management, the risk of subsequent fractures increases more than fourfold.

Aim

To evaluate and compare the characteristics and outcomes of patients with OVF treated conservatively versus surgically, and to identify factors associated with the likelihood of undergoing surgical intervention.

Methods

We retrospectively analyzed patients aged ≥50years diagnosed with OVF and admitted to our FLS between 2023 and 2024. Patients were divided into two groups based on treatment approach: conservative (Group1) and surgical (Group2). Data collected included demographics, comorbidities, fracture location, type, and severity. Statistical analysis was performed using SPSS version 25.

Results

A total of 119 patients were included, with a predominance of females (86.6%). The mean age was significantly higher in Group1 (84.4 ± 8.6 years) compared to Group2 (73.9 ± 7.8 years) ($p<0.001$). Mean BMI was also lower in Group1 (25.8 ± 4.6 vs. 27.1 ± 4.6 kg/m²; $p<0.001$). The lumbar spine was the most commonly affected region, followed by the thoracic spine in both groups. Wedge fractures were the most prevalent type (71.6% in Group1 vs. 46.7% in Group2; $p = 0.001$). Most fractures were classified as severe (61.4% in Group 1 and 66.7% in Group 2), followed by moderate and mild. In Group 2, 74.2% of patients underwent surgery due to persistent, intractable back pain. Increasing age was inversely associated with surgical intervention [OR 0.86, 95% CI: 0.81–0.92; $p < 0.001$].

Conclusion

Surgical treatment for OVF was primarily indicated in younger patients with severe, unrelenting pain. These findings underscore the importance of tailored management strategies based on patient age, fracture severity, and symptom burden to improve outcomes in individuals with OVF.

Keywords: Osteoporotic vertebral fractures, osteoporosis, surgical treatment

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Biography of presenting author

Rheumatology resident in ULS Viseu Dão Lafões

Pitch6. Mental up: an effective socio-emotional skills training program for adolescents in an academic health context

Helena Loureiro[1]; Catarina Bacelo[2]; Sabrina Jesus[2]; Elsa Melo[1]; Emilia Produnte[2]

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Introduction

Adolescence is a phase of the life cycle in which skills, attitudes and behaviours that permit one to grow and become socially and emotionally competent adults are expected to be acquired. This study result of a need identified by a secondary school in the central region of Portugal, which aimed to increase the socio-emotional competences of its students to promote a healthy learning environment that fosters academic success and mental health.

Methods

An action research study measuring the effectiveness of a training program for social skills: Mental UP. For three consecutive school years, a total of 222 students attending the 10th grade at a school in the central region of Portugal were subjected to a program with 12 fortnightly sessions, using active methodologies, aimed at developing skills in Cooperation, Empathy, Assertiveness and Self-Control. The measurement of efficiency was obtained using the Social Skills Questionnaire (SSQ) by the evolution of the positioning regarding the frequency and importance attributed to each of the constituent items, in their dimensions. The data was processed using IBM®SPSS® v 29, using descriptive statistical techniques and the t-test for unpaired samples.

Results

There was a slight decrease in the frequency (M=-0.18; SD=0.84; p=0.001) and importance attributed to cooperation (M=-0.20; SD=0.89; p=0.001). On the other hand, there were significant increases in assertiveness [freq (M=1.62; SD=3.28; p<0.001); imp (M=1.72; SD=2.63; p<0.001)], empathy [freq (M=0.64; SD=4.10; p=0.010); imp (M=0.89; SD=4.43; p=0.002)] and in self-control [freq (M=0.85; SD=3.30; p<0.001); imp (M=1.22; SD=3.44; p<0.001).

Conclusions

The evidence reinforces the importance of implementing pedagogical strategies that simultaneously foster personal growth and the development of interpersonal skills, with a view of promoting empowered citizenship and environments that promote mental health.

Keywords: Mental Health, Community Health, Adolescents

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Biography of presenting author

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Pitch7. Upskilling the healthcare workforce: designing and evaluating hybrid training programs for clinical research literacy

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In an era of increasingly complex and multidisciplinary clinical research, there is a growing need to empower healthcare professionals with comprehensive research skills.1 Q2Science has developed and delivered tailored training programs aimed at equipping professionals across the healthcare and pharmaceutical sectors with the tools to independently design, conduct, analyze, and disseminate clinical research.

Through collaborations with industry partners, we implemented modular learning models combining remote and live workshops, as well as one-on-one mentoring. The curriculum covered all stages of the research cycle - from protocol development and ethical considerations, to statistical analysis, scientific writing, and public presentation of results. Particular emphasis was placed on fostering critical thinking skills to support independent decision-making throughout the research process; promoting reproducibility through transparent methodology and data handling; and ensuring real-world application by aligning training content with actual clinical scenarios, regulatory requirements, and publication standards. As part of the training, participants were also challenged to translate technical content into plain language, creating communication materials suitable for the general public – hence working on essential skills to effectively promote health literacy and patient engagement.

At first stage, we evaluated the impact of the training through participant feedback questionnaires. More than 95% of participants reported substantial improvements in their skills, and a similar proportion would recommend our learning module to other colleagues. 2 Moreover, several participants successfully initiated clinical research projects, following the training programs.2 At a following stage, we propose a new progress evaluation tool to assess competence gains in subsequent learning models.

These training initiatives demonstrated how targeted, interdisciplinary capacity-building can accelerate research literacy, foster a culture of inquiry, and ultimately contribute to more evidence-informed healthcare. Our experience suggests that scalable, hybrid training models can effectively bridge knowledge gaps in clinical research, especially when adapted to the specific needs and contexts of learners.

Keywords: Clinical Research Education, Digital Training Programs, Healthcare Workforce Capacity-Building

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We would like to thank our industry partners for their trust and collaboration throughout this initiative. Our sincere appreciation goes to all training participants, whose engagement and feedback were instrumental in shaping the outcomes of this program. We also acknowledge the valuable contributions of the Q2Science panel of lecturers, whose expertise enriched the learning experience, as well as the dedicated team responsible for designing the digital tool for the next implementation stage.

Biography of presenting author

Currently serving as the Scientific Director at Q2Science, he leads consultancy projects in clinical research, health communication, and postgraduate training. He holds a Doctor of Medicine (MD) from Universidade de Lisboa and a Master of Public Health (MPH) from The University of Edinburgh. With over 15 years of experience as a physician and medical educator, he has worked across public health, applied epidemiology, healthcare management, and international research. He regularly lectures on epidemiology and scientific communication, focusing on health literacy and translational science. His work bridges the gap between complex research settings and everyday clinical practice to empower healthcare professionals.

Pitch8. Fatigue impacts the quality of life of patients with myositis, regardless of age, sex, and muscle strength

Maria Diana Pascoal[1,2]; Catarina Rebelo Silva[1,2]; António Fernandes[3]; Graça Costa[1,2]; Eduardo Dourado[1,2]

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Idiopathic inflammatory myopathies (IIM) are rare autoimmune diseases featuring muscle weakness and systemic involvement, reducing quality of life (QoL). Fatigue, a central symptom, is frequently neglected in clinical studies. We examined fatigue's impact on QoL in IIM patients.

We retrospectively analysed longitudinal data from an IIM specialty clinic. QoL was measured using SF-36 survey – 8 subdomains, compiled in two components - physical (PCS) and mental (MCS). Fatigue was assessed with FACIT-F and muscle strength with MMT8. Statistical analysis included Spearman's correlations between FACIT-F and SF-36 scores and linear mixed models with SF-36 domains as outcomes and FACIT-F, MMT8, sex, and age as covariates. Other models were tested as sensitivity analysis.

28 patients were included, 68% women, median age 62 (IQR 19) years, median 8 (IQR 14) years of disease duration at their first SF-36 assessment. Each patient had a median of 2 (IQR 2) evaluations (total of 61 assessments). The median time between assessments was 6 (IQR 3) months. Fatigue was interpreted as a disease's manifestation in 62% of patients. The median SF-36 PCS was 37.8 (IQR 15.2) and MCS 48.4 (IQR 11.6). The median FACIT-F was 33 (IQR 15). Fatigue was inversely correlated with physical ($r=0.766$, $p<0.001$) and mental ($r=0.652$, $p<0.001$) health, as well as with all SF-36 subdomains ($p\leq0.001$ for all subdomains). Moreover, fatigue had a statistically significant influence on both physical ($p<0.001$) and mental ($p<0.001$) health irrespective of age, sex, and muscle strength. For each unit of increase in FACIT-F score, PCS increased by 0.6 and MCS by 0.5. All sensitivity analysis were consistent with the main results.

Fatigue significantly impairs physical and mental QoL in IIM patients, regardless of demographic factors or muscle strength. These findings highlight the need to include fatigue as a core outcome in IIM clinical trials, unveiling possible interventions to improve QoL.

Keywords: Myositis, Fatigue, Quality of life

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Biography of presenting author

Integrated Masters Degree in Medicine by University of Coimbra completed in 2022.

Currently undergoing Medical Residency in Rheumatology in Unidade Local de Saúde da Região de Aveiro (second year).

Pitch9. Phenotypic heterogeneity in cancer stem cells of non-muscle invasive bladder cancer

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Bladder cancer (BC) ranks as the ninth most common malignancy worldwide, with the majority of cases presenting as non-muscle invasive bladder cancer (NMIBC). High-risk NMIBC poses a significant clinical challenge owing to its heterogeneous behaviour, high recurrence rates, and substantial progression risk to muscle-invasive disease. Intravesical Bacillus Calmette-Guérin (BCG) immunotherapy remains the cornerstone adjuvant therapy, yet it fails in 30–50% of patients, underscoring the urgent need for alternative strategies.

We hypothesise that phenotypic heterogeneity in cancer stem cells (CSCs) underlies treatment resistance and recurrence in NMIBC. To address this, we chose two cell lines that mimic BCG-responsive (TCCSUP) and non-responsive (RT4) cells. To assess chemotherapeutic sensitivity, IC50 values were determined for cisplatin and gemcitabine, revealing greater susceptibility of TCCSUP to gemcitabine and RT4 to cisplatin. A CSC enrichment protocol was established, enabling morphological evaluation of spheroids: RT4 cells formed more numerous but smaller spheres (~40,000 pixels of projection area) with well-defined margins, whereas TCCSUP exhibited fewer, slightly larger spheres (~50,000 pixels of projection area) with irregular borders. Sphere-forming efficiency was comparable, ranging from 2% to 3% in both lines. Preliminary flow cytometry analysis revealed the expression of stemness markers, including CD44 and CD24, as well as CD133, with predominant populations in the CD44+/CD24- (~50%) and CD44+/CD24+ (~10%) subsets. These findings, though initial, highlight CSC phenotypic diversity as a potential driver of therapeutic failure and offer promising avenues for targeted interventions in high-risk NMIBC.

Keywords: Non-Muscle Invasive Bladder Cancer, Cancer Stem Cells, BCG therapy resistance

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Biography of presenting author

Catarina Isabel Costa Mestre is a biomedical researcher with a BSc in Biochemistry and an MSc in Biomedical Research in Oncobiology from the University of Coimbra. Her research focuses on cancer biology, stemness regulation, and translational therapies, with hands-on experience at CIMAGO, CEDOC, iCBR, and the Champalimaud Foundation. She has co-authored publications in Cancers (2024) and Biology (2025) and presented at ESMO 2023 and EACR 2025. Skilled in flow cytometry, cell culture, and proteomics, she is currently a fellow at the Biophysics Institute, advancing photodynamic therapy and novel scaffolds for cancer treatment.

Pitch10. Identification of novel BRCA2 epistatic interactions

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Mutations in the Breast Cancer 2 (BRCA2) gene have been linked to a significant increase in susceptibility to breast and ovarian cancer. While BRCA2 is well known for its critical role in homologous recombination and the accurate repair of DNA double-strand breaks (DSBs), recent evidence suggests additional functions that may also contribute to its tumor suppressor activity. This makes the association between BRCA2 mutations and cancer susceptibility more complex than previously thought.

Our hypothesis is that epistatic interactions between BRCA2 mutations and the genetic background of carriers contribute to cancer susceptibility, progression, and ultimately, to clinical outcome.

Our aim is to use Drosophila melanogaster as a model organism to perform an unbiased, genome-wide study of BRCA2 epistatic interactions.

We conducted a pilot screen to identify Drosophila BRCA2 (dBrca2) epistatic interactions. This pilot screen used larval wing imaginal discs - a highly proliferative epithelial tissue that gives rise to adult Drosophila wings. We screened approximately 350 short hairpin RNAs targeting an equal number of genes, both in the presence of normal (control RNAi) or reduced levels of dBrca2 (dBrca2 RNAi) and identified multiple genes that genetically interact with dBrca2.

Our results strongly support that our screening platform is suitable for genome-wide screens aimed at identifying novel epistatic interactions involving dBrca2, and other homologous recombination genes, in the context of a developing multicellular organism.

Keywords: Brca2, Drosophila melanogaster, BAF chromatin-remodeling complex

Pitch11. A biomechanical–mathematical model linking brain impact biomechanics to tau protein accumulation in chronic traumatic encephalopathy

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Chronic traumatic encephalopathy (CTE) is a progressive neurodegenerative disorder linked to repetitive traumatic brain injury (TBI) and characterized by the abnormal aggregation of tau protein. Despite extensive biological and clinical research, the mechanistic link between the mechanical impact experienced during trauma and the subsequent biochemical evolution of tau pathology remains poorly understood.

In this study, we introduce a novel mathematical model to predict the spatiotemporal progression of tau accumulation in brain tissue following TBI. The formulation is inspired by classical mathematical frameworks originally developed to describe phase-transformation processes in materials through nucleation and growth mechanisms. Here, this concept is adapted to a biological context, where each nucleation site represents a local initiation of tau aggregation, and the subsequent growth rate depends on time-dependent parameters analogous to those governing transformation kinetics in solids. The model incorporates assumptions about the nucleation rate and the growth velocity of tau-affected regions, both of which can evolve with time to reproduce realistic pathological dynamics.

The temporal component of the model is calibrated using experimental data from mouse models of tauopathy, ensuring that the global kinetics match observed progression patterns. Spatial heterogeneity is introduced through the local mechanical stress field obtained from finite element simulations in Abaqus, allowing regions under higher post-impact stress to exhibit faster local transformation rates.

This integrated biomechanical–mathematical framework enables the prediction of how tau pathology evolves over time and space within the brain. The model provides a physically grounded, quantitative connection between injury biomechanics and neurodegenerative progression, potentially contributing to the early identification of stress-sensitive regions prone to CTE-related tau accumulation.

Keywords: Traumatic Brain Injury (TBI), Biomechanical Modeling, Chronic Traumatic Encephalopathy (CTE)

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Biography of presenting author

José González Cabrero, born in Murcia, Spain, is a mechanical engineer with a master's degree in industrial engineering from the Technical University of Cartagena (UPCT), Spain. His research focuses on biomedical engineering, particularly in biomechanics, and morphological analysis of tissues. At UPCT, he developed morphogeometric methods for early detection of corneal diseases and brain structural changes in Alzheimer's disease. He has worked at the Max Planck Institute (Munich) and the Clément Ader Institute (Toulouse) and is currently a research fellow (bolseiro) at the University of Aveiro, developing mathematical models to predict tau protein accumulation after traumatic brain injury (CTE disease).

Pitch12. Retinoid modulation attenuates amyloidogenic processing and restores mitochondrial function in an in vitro model of Alzheimer's disease

José João Vitória[1]; Diogo Trigo[1]; Odete Da Cruz E Silva[1]

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Alzheimer's disease (AD) is defined not only by progressive amyloid beta (Aβ) deposition but also by profound disturbances in cellular metabolism. Retinoic acid receptors (RARs) exert protective roles in the nervous system, influencing protein turnover and mitochondrial activity, yet their isoform-specific contribution to AD pathology is not completely understood. Here, we examined the effects of targeted RAR activation in an in vitro model of AD, with particular focus on mitochondrial morphology, activity and dynamics, metabolic regulation, APP processing, and Aβ generation. AD conditions feature disrupted mitochondrial dynamics, transport, morphology, and membrane potential, while elevating reactive oxygen species. Remarkably, selective RAR modulation restored mitochondrial integrity and reduced oxidative stress. Furthermore, pharmacological activation of RARs lowered Aβ secretion in both wild-type and APP Swedish-transfected cells, likely through modulation of secretase-dependent APP cleavage. Collectively, these findings reveal a dual protective action of RAR signalling, normalizing mitochondrial metabolism and limiting amyloidogenic burden, positioning retinoid-based interventions as promising candidates for therapeutic development in AD.

Keywords: Alzheimer's disease, retinoic acid receptor, mitochondria

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Biography of presenting author

José João Mendonça Vitória is a Ph.D. candidate in Biomedicine at the University of Aveiro, specializing in molecular biomedicine and neuroscience. His research focuses on retinoid-mediated regulation of ADAM secretases and mitochondrial function as therapeutic strategies for Alzheimer's disease. With expertise in cellular and molecular biology, he has contributed to projects funded by FCT and La Caixa Foundation, and published in journals such as Cellular and Molecular Life Sciences and Neural Regeneration Research. He has presented at international conferences and received multiple academic distinctions.

POSTERS

CARDIOVASCULAR AND RESPIRATORY DISEASES

SPONTANEOUS SINUS RHYTHM RESTORATION AFTER ATRIAL FIBRILLATION: CLINICAL PREDICTORS AND OUTCOMES

Carlos Costa (Portugal)1; Inês Cruz (Portugal)1; Tiago Aguiar (Portugal)1; Simão De Almeida Carvalho (Portugal)1; Ana Faustino (Portugal)1; José Mesquita Bastos (Portugal)1,2; Mariana Santos Silva (Portugal)1

1 - ULS Região de Aveiro; 2 - iBiMED

Abstract

Introduction

Atrial fibrillation (AF) is a major cardiovascular condition with a significant impact on quality of life. In patients considered for a rhythm control strategy—particularly those not previously anticoagulated—clinicians must decide between immediate or delayed cardioversion. In some cases, transesophageal echocardiography (TEE) may be required to exclude left atrial thrombus before cardioversion. Given the variability in AF presentation and comorbidities, individualized rhythm control strategies are essential.

Objective

To identify independent predictors of spontaneous restoration of sinus rhythm following an episode of atrial fibrillation.

Methods

A retrospective observational study including 122 patients reassessed at a Cardiology Day Hospital after an AF episode, for potential rhythm control or electrical cardioversion. Statistical analyses were performed using SPSS, with Independent Samples T-tests and Chi-square tests.

Results

The mean age was 67.2 years, and 38.3% were female. Patients presented an average of 2.5 major cardiovascular risk factors. Most (72.3%) were referred from outpatient clinics, while 27.7% came from the Emergency Department (ED). Among them, 35.1% were experiencing their first AF episode. The mean follow-up after Day Hospital evaluation was 188.3 days, with 9.2% experiencing AF

recurrence after successful cardioversion and no reported strokes. The mean EHRA symptom score before therapy was 1.96, and the mean time to re-evaluation was 32.7 days.

At re-evaluation, all patients initially classified with paroxysmal AF were in sinus rhythm ($p<.001$). Sinus rhythm was also more frequent among patients referred from the ED compared with outpatient clinics (52.2% vs 8.8%, $p<.001$).

Conclusion

Patients with paroxysmal AF and those referred from the Emergency Department showed higher rates of spontaneous sinus rhythm restoration. In selected cases, deferred rhythm control with short-term re-evaluation may be a safe and effective alternative to immediate cardioversion.

Keywords : Atrial Fibrillation; Spontaneous Cardioversion; Rhythm Control Strategy

USE OF HANDHELD NIRS PROFILING IN CARDIAC SURGERY: PREDICTIVE MODELLING IN SURGICAL PROCEDURES UNDER CARDIOPULMONARY BYPASS

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Abstract

Background: Cardiovascular diseases are the leading cause of morbidity and mortality worldwide (1). During cardiac surgery with cardiopulmonary bypass (CPB), real-time monitoring is crucial for anticipating and preventing metabolic imbalances. Near-infrared spectroscopy (NIRS) is a safe, non-invasive analytical tool increasingly being applied in biomedical research and clinical practice (2,3). Integrating NIRS data with clinical and molecular parameters may extend its application beyond conventional tissue oxygenation monitoring methods. This study aimed to correlate NIRs signals with blood gas parameters in patients undergoing cardiac surgery under CPB to support development of predictive models for the use of a handheld NIRS device in a clinical setting.

Methods: We recruited 118 patients who underwent cardiac surgery with CPB at the S. João University Hospital Centre. NIR spectra (900 – 1700 nm) were acquired using a handheld device. Readings were acquired hourly from the start of CPB by placing the equipment directly on the arterial cannula, with five replicates per time point. Control spectra were obtained from empty and saline-filled cannulas to correct for the background absorption. Additional NIRs measurements were collected from dried blood spot (DBS) samples obtained during surgery. All spectra pre-processing and statistical analyses were performed in R and predictive modelling was conducted using Random Forest.

Results: Spectral analysis revealed significant correlations between NIR spectra from DBS and critical blood gas parameters, particularly lactate and haematocrit levels. Lactate, a key indicator of tissue hypoperfusion and metabolic stress, showed meaningful associations with specific NIR wavelength regions. These preliminary findings demonstrate that NIRS data can be effectively integrated with clinical variables to develop predictive models for real-time intraoperative monitoring.

Conclusions: Preliminary results support the feasibility of NIR-based monitoring during cardiac surgery under CPB for the real-time detection of metabolic alterations. Further analyses are ongoing to validate these predictive models and assess their clinical applicability.

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Biography of presenting author
Liliana Moreira-Costa is a Research Assistant at Department of Physiology and Surgery from Faculty of Medicine of University of Porto (FMUP) and a member of the associated laboratory RISE – Health Research Network. Her research focuses on translational research in cardiovascular sciences, particularly the use of animal models as disease surrogate. She is interested in developing and validating new methods and devices for intraoperative use, as well as exploring novel therapeutic approaches for cardiovascular diseases such as heart failure and pulmonary hypertension.

Keywords : Cardiopulmonary bypass, Near-infrared spectroscopy

NOT ALL THAT GLITTERS IS A TUMOR: THE TALE OF A BENIGN CARDIAC COMPANION

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Abstract

Background: Pericardial cysts are rare, benign congenital anomalies of the pericardium, typically located in the right cardiophrenic angle and often discovered incidentally during imaging for unrelated reasons.1,2,3 They are usually asymptomatic and benign.1,3 We report a case of a large, stable pericardial cyst in an atypical location. Case Presentation: A 64-year-old woman, non-smoker but with passive tobacco exposure, working as a supermarket cashier, was referred to pulmonology for progressive fatigue and productive cough lasting one year. Her history included dyslipidaemia and a prior SARS-CoV-2 infection. Medications included rosuvastatin/ezetimibe, fluticasone furoate/vilanterol, and trazodone. Physical examination and vital signs were unremarkable. An initial echocardiogram suggested pericardial effusion. Chest CT revealed a large, thin-walled cystic lesion (13.7 × 7.4 × 5.5 cm) along the left lateral cardiac wall, suggestive of a pericardial cyst, with mild post-inflammatory fibrotic changes and cylindrical bronchiectasis in the middle lobe. Pulmonary function testing showed a mild restrictive defect. Thoracic MRI confirmed a well-defined, homogeneous, T2-hyperintense and T1-hypointense lesion, measuring approximately 12 × 3 × 8.4 cm, extending from the aortic arch to the left hemidiaphragm, consistent with a fluid-filled pericardial cyst. No evidence of mass effect, invasion, or pericardial effusion was observed. Differential diagnoses, including cystic lymphangioma, were excluded due to the homogeneous content and absence of septations or enhancement. A small right renal cyst (4.9 cm) was also identified incidentally. Retrospective review of prior chest radiographs demonstrated radiographic stability for over eight years. Follow-up echocardiography confirmed pericardial cyst, preserved biventricular function and absence of hemodynamic compromise. PET-CT was deemed unnecessary, and annual MRI follow-up was recommended. Conclusion: This case illustrates an incidentally discovered, stable pericardial cyst in an atypical left pericardial location.3 Long-term imaging stability and

characteristic MRI features supported conservative management, avoiding unnecessary invasive procedures.1,2,3

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Biography of presenting author
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Keywords : Pericardial cyst, mediastinal mass, Thoracic MRI.

TELEMONITORING IN PREGNANCY: A NEW ERA IN THE MANAGEMENT OF HYPERTENSIVE DISORDERS

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Abstract

Background

Hypertensive disorders in pregnancy are a leading cause of maternal and perinatal morbidity and mortality. Early detection, close monitoring, and individualized management are essential to improve outcomes. To address these challenges, a new care model integrating telemonitoring and personalized follow-up was implemented for pregnant women with hypertension referred from the Obstetrics Department to the Cardiology Hypertension Clinic.

Methodology

Over 1.5 years, 35 pregnant women with hypertensive disorders were enrolled in a pilot telemonitoring project developed by the Shared Services of the Ministry of Health (SPMS). The system automatically transmitted blood pressure (BP), heart rate (HR), and biometric data from connected home devices to a secure clinical platform (Telemonit SNS24). Cardiologists reviewed the data in real time, enabling prompt therapeutic adjustments and early clinical interventions. Video consultations were used to reinforce adherence, provide education, and ensure continuous, patient-centered support throughout pregnancy.

Results

Telemonitoring enabled continuous acquisition and visualization of BP and HR trends, allowing early detection of complications. Median patient age was 33.2 years; 48% were Portuguese, others from Brazil, PALOPs, Venezuela, Nepal, and India. The approach improved BP control and supported timely decision-making. Implementation led to a 25% reduction in face-to-face consultations and a 35% increase in remote contact, reflecting stronger patient engagement. Participants reported high satisfaction, and preliminary results indicate improved maternal and neonatal outcomes. After delivery, women remained under follow-up to assess normalization or persistence of hypertension.

Conclusions

Telemonitoring, developed with SPMS, proved to be an innovative and effective strategy for

managing hypertensive disorders in pregnancy. By combining technology, multidisciplinary collaboration, and patient education, this model promotes optimized follow-up, efficient resource use, and greater patient involvement. Future enhancements include digital questionnaires to evaluate symptoms, adherence, and satisfaction, advancing data-driven maternal care.

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Keywords : Hypertension, Prenatal, Telehealth

MAPPING EXERCISE DOSE PROGRESSION STRATEGIES IN CARDIAC REHABILITATION: A SCOPING REVIEW PROTOCOL

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Abstract

Introduction: Cardiac Rehabilitation (CR) improves physical, psychological, and social outcomes in cardiovascular disease patients, reducing recurrence and enhancing quality of life. Despite exercise progression being critical for CR safety and effectiveness, standardized dose progression strategies remain inconsistent across conditions and settings, creating gaps in evidence-based practice.

Objective: To systematically map and synthesize existing literature on exercise dose progression strategies in CR programs. Specifically, to characterize common progression approaches, explore how these strategies differ across cardiac conditions, program settings, and patient populations, and identify knowledge gaps to inform future research and clinical practice.

Methods: This scoping review protocol follows Joanna Briggs Institute methodological guidelines. Four databases (PubMed, Scopus, Science Direct, Web of Science) will be searched. Two reviewers will independently screen studies. Eligible studies include adults with cardiovascular disease undergoing exercise training as part of CR or standalone interventions, including quantitative, qualitative, mixed-methods designs and protocols, published from 2010 onwards in English, Portuguese, or Spanish. Extracted data will include dose progression strategies, prescription models, intensity criteria for aerobic and resistance training, monitoring tools and methods, impact of setting and CR phase on intensity and progression, exercise variability across clinical conditions, and additional exercise modalities.

Expected Outcomes: This review will synthesize current evidence on exercise progression strategies, focusing on duration, intensity, frequency, and key factors influencing dose progression. Results will be organized thematically and presented in summary tables with narrative synthesis. Findings will clarify current practices across clinical conditions, settings, and CR phases, identify

areas requiring standardization, and provide an evidence foundation for developing more consistent and effective exercise prescription guidelines in CR.

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Keywords : Cardiovascular rehabilitation, Exercise therapy, Progression

THERAPEUTIC AND MEDICATION REGIMEN ADHERENCE AND ITS ASSOCIATION WITH CARDIOVASCULAR RISK IN PATIENTS FOLLOWING ACUTE CORONARY SYNDROME

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Abstract

Background: Cardiovascular diseases represent a major public health concern and remain the leading cause of mortality and disability worldwide, with profound social, economic, and cultural implications [1]. A large proportion of these conditions is associated with unhealthy lifestyles and modifiable risk factors [2]. Identifying and controlling these factors are crucial to reducing the incidence and complications of Acute Coronary Syndromes (ACS). Therefore, understanding patients' adherence to therapeutic and medication regimens prior to an ACS event enables the implementation of effective nursing interventions focused on health promotion, the adoption of healthy lifestyle habits, and the prevention of recurrent cardiac events.

Objectives: To characterize the sociodemographic and clinical profile of patients who developed ACS and were admitted to a Coronary Intensive Care Unit (CICU); to translate and culturally adapt the Coronary Artery Disease Treatment Adherence Scale (CADTAS) [3] into European Portuguese and assess its reliability; and to evaluate hospitalized patients' adherence to therapeutic and medication regimens.

Methods: Data were collected using a structured questionnaire comprising sociodemographic, clinical, and anthropometric variables, as well as the Portuguese version of the CADTAS.

Results: Adherence to therapeutic regimens among ACS patients was predominantly influenced by age and sex, with higher adherence observed among older adults and females. Modifiable risk factors — including obesity, unhealthy dietary patterns, physical inactivity, smoking, and dyslipidemia — were associated with lower adherence to healthy lifestyle behaviors.

Conclusions: The findings highlight the need for targeted educational strategies to foster healthy behaviors and improve therapeutic adherence, emphasizing the critical role of nurses in health promotion given their close patient interaction and specialized expertise.

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Keywords: Acute Coronary Syndrome, Adherence to therapeutic and medication regimen, Nursing Care

FITME: FORMULATING INDIVIDUALIZED EXERCISE PRESCRIPTION

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NORMATIVE VALUES OF FUNCTIONAL CAPACITY MEASURES IN NON-DEMENTED INSTITUTIONALIZED ELDERS

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Biography of presenting author

I concluded my degree in physiotherapy in 2005 and my Master´s degree in physiotherapy in 2015 at School of Health Sciences - University of Aveiro, with a final thesis on the health-related physical fitness of children and adolescents in Portugal. I am currently a PhD student in Doctoral Programme in Rehabilitation Sciences of University of Aveiro. I´m a professor and the Physiotherapy Course Coordinator at Jean Piaget Health School (Vila Nova de Gaia) and a research member of the Insight - Piaget Research Center For Ecological Human Development and the Institute of Biomedicine (iBiMED), University of Aveiro, Portugal.

Keywords : Normative values, Functional capacity, Elders

THE INFLUENCE OF EXERCISE AND PHYSICAL ACTIVITY ON THE SURGICAL TREATMENT OF NON-SMALL CELL LUNG CANCER (NSCLC)

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Abstract

Introduction: Lung cancer is the leading cause of death worldwide, with non-small cell lung cancer (NSCLC) being the most common type (85%). Surgery is the treatment of choice in the early stages, but it is associated with reductions in lung and physical function, and when combined with the symptoms of the cancer itself, patients are more vulnerable to postoperative complications. Thus, physical activity may emerge as a strategy to mitigate these effects.

Methods: A bibliographic search was conducted in the PubMed database between 2014 and 2024, using the following keywords: physical activity, exercise, non-small cell lung cancer. The defined inclusion and exclusion criteria were applied, and 15 articles were selected.

Results: Preoperative exercise programs consistently improved cardiorespiratory fitness, reduced postoperative complications, and shortened hospital stays, although the effects on lung function, health-related quality of life (HRQoL), anxiety, and depression were inconsistent. Postoperatively, physical exercise increased cardiorespiratory fitness, with no improvements in lung function. However, the remaining outcomes—lung function, anxiety and depression, HRQoL, complications, and length of hospital stay—showed heterogeneous results.In the perioperative period, data are insufficient, reflecting the limited scientific evidence available.

Conclusion: Preoperative exercise showed more strong benefits than postoperative exercise. However, further studies with uniform methodologies are needed to clarify the effect of physical exercise on the surgical treatment of NSCLC.

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Luis Câmara is a medical student at the University of Beira Interior (UBI), with a special interest in pulmonology. Since the beginning, he has shown scientific curiosity and a strong interest in research, believing that research is extremely important for the advancement of medicine. His goal for the future is to integrate research and clinical practice, contributing to advances in the diagnosis and treatment of a wide range of diseases.

Keywords : Lung Cancer, Physical exercise, Non-small cell lung cancer

EFFECTIVENESS OF EARLY MOBILISATION OF CRITICALLY ILL PATIENTS IN INTENSIVE CARE UNITS: A PROTOCOL FOR A SCOPING REVIEW

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Abstract

Intensive Care Unit-acquired weakness (ICU-AW) is a condition that affects approximately 25% of critically ill patients in Intensive Care Units (ICUs), with a negative impact on functionality and quality of life after discharge. Early mobilisation (EM) of these patients has been associated with the prevention of complications resulting from prolonged immobility, such as ICU-AW, contributing to improved functionality and quality of life. However, recent literature highlights the lack of consensus regarding the types of intervention applied, as well as the ideal timming, intensity, frequency, and duration of EM, which prevents knowledge of the true benefits of EM.

Thus, this scoping review will have the overall objective of evaluating the effectiveness of MP in critically ill patients in ICUs. The specific objectives will be to analyse the types of interventions applied, the criteria defined for their initiation, the main barriers and facilitators to their implementation, as well as to describe the associated objectives, risks and benefits. It also aims to assess the impact of MP on hospital length of stay. The methodology will follow the guidelines of the Joanna Briggs Institute (JBI), with a comprehensive search strategy in the PubMed, Scopus, PEDro, CINAHL, and Cochrane Library databases. Studies published between 2015 and 2025, in Portuguese or English, involving adults admitted to the ICU will be included. The analysis will be qualitative, with a narrative synthesis of the data organised into thematic tables. We expect to analyse recent interventions, as well as gaps in the literature.

The implications for clinical practice include the possibility of supporting the creation of evidence-based protocols, improving the implementation of PM, and promoting a more integrated approach in ICUs.

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Keywords : ICU-AW, mobilisation, functionality

MULTIDRUG-RESISTANT TUBERCULOSIS IN A PREGNANT WOMAN — MANAGEMENT AND MATERNAL–FETAL OUTCOMES

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Abstract

Introduction: Tuberculosis (TB) during pregnancy poses significant risks to both mother and fetus, and multidrug-resistant TB (MDR-TB) adds further complexity due to limited therapeutic options and potential teratogenicity of second-line drugs.1,2 Management requires balancing maternal disease control with fetal safety under multidisciplinary supervision.1,2 Case Presentation: A 29-year-old woman from India, living in Portugal, non-smoker and with no alcohol or drug use, presented at 35 + 2 weeks of gestation with a two-month history of productive cough, purulent sputum, right-sided chest pain, weight loss, and anorexia. Previous history of pulmonary TB in 2013 (supposedly successfully treated in India). Sputum smear at the local health center was positive for acid-fast bacilli, and molecular testing confirmed resistance to isoniazid and rifampicin. She was on first-line therapy (HRZE), that was discontinued, being admitted for initiation of a pregnancy-compatible MDR-TB regimen. On admission, clinically stable. Chest examination revealed reduced breath sounds and crackles over the right upper lung. Chest X-ray demonstrated right upper lobe infiltrates. Laboratory workup revealed microcytic anemia. No other comorbidities or immunodeficiency were detected. A second-line treatment regimen was initiated after multidisciplinary discussion (Bedaquiline, Linezolid, Levofloxacin, Clofazimine, and Pyrazinamide — BLLfxCZ), all compatible with pregnancy and breastfeeding, with good tolerance. Fetal lung maturation was completed with dexamethasone. She underwent elective caesarean delivery at 38 + 5 weeks, giving birth to a healthy male infant (2,500 g; Apgar 10/10/10). Postpartum recovery was uncomplicated, except for transient left-sided chest pain and mild pericicatricial bruising. Psychological distress related to separation from her newborn improved after family reunification. Progressive weight gain and clinical recovery were observed during follow-up. Conclusion: This case highlights the feasibility and safety of a pregnancy-compatible MDR-TB regimen (BLLfxCZ)1,2,3,4 with multidisciplinary coordination. Early diagnosis, individualized therapy, and psychosocial support are critical for optimizing maternal and neonatal outcomes in MDR-TB during pregnancy.1,2

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Keywords : Multidrug-resistant tuberculosis; Pregnancy;

TRENDS IN INITIAL PHARMACOLOGICAL TREATMENT OF COPD IN DUTCH PRIMARY CARE, 2010–2021: A REPEATED CROSS-SECTIONAL STUDY

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Keywords : Pulmonary Disease, Chronic Obstructive, Primary Health Care, Drug Therapy

PRESCRIBING PATTERNS OF GENERAL PRACTITIONERS FOR INITIAL ASTHMA TREATMENT BETWEEN 2010 AND 2021 IN THE NETHERLANDS: A POPULATION-BASED STUDY

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Keywords : Asthma, Primary Health Care, Drug Therapy

WHEN RHEUMATOID ARTHRITIS COUGHS, THE CILIA SPEAK: UNMASKING A CILIOPATHY BEHIND LIFELONG BRONCHIECTASIS

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Abstract

Introduction: Bronchiectasis is a well-recognized comorbidity in rheumatoid arthritis (RA), usually attributed to chronic infection, immune dysregulation, or treatment toxicity.1 However, when bronchiectasis possibly precedes RA onset or coexists with extra-pulmonary features such as hearing or visual impairment, underlying genetic disorder should be considered.1,3 Ciliopathies, a heterogeneous group of diseases caused by defects in ciliary structure or function, can involve multiple systems, particularly the respiratory, auditory, and visual tracts.2,3Case Report: We present the case of a 61-year-old woman, retired factory worker and former smoker, with hypertension, dyslipidaemia, and chronic rhinosinusitis, who developed rheumatoid arthritis at 22 years of age. She had a lifelong history of daily mucopurulent sputum and recurrent respiratory infections, but no prior history of tuberculosis, measles, pertussis, or childhood pneumonia. High-resolution CT showed diffuse bronchiectasis predominantly in the middle and lower lobes with mucus impaction and a tree-in-bud pattern. Sputum cultures previously yielded methicillin-sensitive Staphylococcus aureus. Pulmonary function testing revealed mild obstruction and moderate diffusion impairment. Bronchoscopy demonstrated thick secretions, and bronchial aspirate and lavage were obtained for microbiological and cytological evaluation, all negative. She also had progressive left-sided sensorineural hearing loss from early adulthood. Over a 4-year follow-up with stable respiratory status, she developed cataracts and glaucoma, and a hereditary retinal dystrophy was suspected by Ophthalmology. Genetic testing identified a homozygous pathogenic variant c.265del p. in the SDCCAG8 gene, consistent with a ciliopathy related to syndromic retinal dystrophy.Conclusions: This case highlights the importance of re-evaluating the aetiology of bronchiectasis, particularly when clinical features precede autoimmune manifestations or involve multiple organ systems.1

While RA may have contributed to disease progression, the underlying SDCCAG8-related ciliopathy likely represents the primary cause.2,3Genetic testing should be considered in patients with atypical

or syndromic bronchiectasis, as establishing an accurate diagnosis informs prognosis, guides management, and helps avoid misattribution to autoimmune disorders alone.1,2,3.

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Keywords : Bronchiectasis; Rheumatoid arthritis; Ciliopathy;

FROM BRONCHIECTASIS TO HYPERSENSITIVITY PNEUMONITIS: UNMASKING AN EVOLVING INTERSTITIAL LUNG DISEASE

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Abstract

Introduction: Bronchiectasis may represent the result of diverse pulmonary disorders, including post-infectious.1 However, progressive imaging abnormalities and persistent inflammation should prompt investigation for interstitial lung disease (ILD).2 We describe an elderly woman initially followed for bronchiectasis who was later reclassified as having a provisional diagnosis of hypersensitivity pneumonitis (HP). Case Presentation: A 78-year-old non-smoking woman, retired, with no known exposures, with type 2 diabetes mellitus, mild mitral and tricuspid valve insufficiency, dyslipidaemia, history of transient ischemic attack and pertussis was followed for chronic productive cough and recurrent respiratory infections. She was initially diagnosed with bilateral cylindrical bronchiectasis. Early microbiology revealed methicillin sensible Staphylococcus aureus (MSSA) and Aspergillus terreus in bronchoalveolar samples, interpreted as colonization. Despite multiple antimicrobial, antifungal treatments and immunotherapy for MSSA, there was no sustained clinical or radiologic improvement. Serial high-resolution CT (HRCT) scans demonstrated progressive architectural distortion, traction bronchiectasis, and honeycombing—predominantly in the left lower lobe—together with new ground-glass opacities and nodular lesions. Lung function declined, and long-term oxygen therapy became necessary following recurrent infectious exacerbations. A multidisciplinary ILD discussion was held after further radiologic progression. Bronchoalveolar lavage (BAL) revealed marked lymphocytosis, and serum precipitins were positive for duck and pigeon antigens, supporting exposure-related hypersensitivity.Most recent bronchoscopy isolated Serratia marcescens, treated with ciprofloxacin. Given the patient's reluctance for invasive biopsy and an HRCT pattern indeterminate for fibrotic HP, a provisional diagnosis of fibrotic hypersensitivity pneumonitis was established based on clinic-radiologic, immunologic, and BAL findings.Conclusion:This case highlights how chronic bronchiectasis may mask an evolving interstitial process. The combination of fibrosis, active lymphocytic inflammation, and avian antigen sensitization supported a provisional diagnosis of possibly fibrotic HP.1,2Multidisciplinary evaluation remains essential in bronchiectasis

patients who clinically or radiologically deteriorate despite optimized management.1,2Bronchiectasis is part of the findings for interstitial lung abnormalities and has been reported to be associated with worse mortality.3

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Keywords : Bronchiectasis; Hypersensitivity pneumonitis; Fibrotic ILD;

ORGANISING PNEUMONIA AS 1ST MANIFESTATION OF ANTI-SYNTHETASE SYNDROME: CASE REPORT

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Abstract

Anti-synthetase syndrome (ASS) is an autoimmune disease within the spectrum of idiopathic inflammatory myopathies, defined by the presence of anti-aminoacyl-tRNA synthetase antibodies and a clinical constellation including fever, myositis (dermatomyositis/polymyositis), interstitial lung disease (ILD), arthritis, Raynaud's phenomenon and so-called "mechanic's hands 1. Although ILD may develop simultaneously, before, or after the myositis component, presentations in which organizing pneumonia is the initial manifestation are rare 1,2.

We describe a 53-year-old woman with dyslipidaemia, allergic rhinitis, a family history of asthma and rheumatoid arthritis, who presented with two weeks of progressive dyspnoea (mMRC grade 3), dry cough, bilateral pleuritic chest pain, fever, nausea, diarrhoea, aphthous lesions, xerophthalmia, xerostomia and asthenia. An angio-CT showed bilateral basal predominant interstitial densification (no honeycombing, no ground-glass opacities, no bronchiectasis) and an autoimmune screen was initially negative. Bronchoscopy with BAL was performed. A working diagnosis of organizing pneumonia was made and corticosteroid therapy started. Clinical improvement followed, and the patient was discharged to rheumatology follow-up. During tapering of corticosteroids she developed arthralgias, hand and wrist swelling and stiffness, knee and foot involvement, "mechanic's hands" and Raynaud's phenomenon, without overt myositis. Serology revealed ANA 1:640 and anti-Jo-1 positivity. Functional worsening prompted cyclophosphamide induction and remission ensued. A diagnosis of ASS with secondary Sjögren's syndrome was assumed.

This case illustrates that ILD is found in around 60% or more of ASS patients and may present even in the absence of overt myositis 2,3. The presence of anti-Jo-1 is associated with poorer survival, reduced response to corticosteroids and higher incidence of relapse on tapering 3,4. Screening for ASS should be considered in patients with organizing pneumonia or other unexplained ILDs 1,5 . A high index of suspicion, combined with multidisciplinary evaluation (pulmonology, rheumatology, radiology and serology) and early immunosuppressive therapy, is crucial for improving outcomes in

this otherwise under-recognised entity 4,5.

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Keywords : Organising pneumonia; Antisynthetase syndrome; Anti Jo1.

ONE SMALL DRAIN FOR MAN, ONE GIANT EDEMA FOR LUNGKIND: A CASE REPORT

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Abstract

Introduction: Re-expansion pulmonary oedema (RPE) is a rare but potentially life-threatening complication that may occur after the rapid re-expansion of a collapsed lung following pneumothorax or pleural effusion drainage1,2. Clinical manifestations range from mild symptoms to fulminant respiratory failure.1,2 Early recognition and prompt supportive management are essential to improve outcomes.1,2Case Report: An 84-year-old man, ex-smoker with hypertension, dyslipidaemia, ischemic heart disease, hyperuricemia, benign prostatic hyperplasia, and a prior ischemic stroke presented with a 3-day history of progressive dyspnoea (chronic mMRC 2 to 3), asthenia, and malaise. On arrival, he was hypertensive (170/75 mmHg), tachycardic (150 bpm, irregular), and hypoxemic (SpO_2 89%, high debit mask). Breath sounds were diminished on the right. Chest radiography revealed a right pneumothorax. Laboratory findings included elevated troponin (1749 ng/L) and D-dimer, normal C-reactive protein, and worsening renal function. ECG showed poor R-wave progression in V1–V3 and ST depression in V4–V6, consistent with type 2 myocardial infarction. Arterial blood gas analysis demonstrated severe hypoxemic respiratory failure (PaO_2 59 mmHg on high-debt mask). After thoracic drainage, transient improvement was followed by rapid clinical deterioration, with need of high-flow oxygen therapy. Echocardiography revealed preserved left ventricular systolic function. First control radiography showed no opacification, but second control radiography showed right lung opacification suggestive of RPE. CT excluded pulmonary embolism and confirmed centrilobular emphysema with inflammatory consolidation. Patient required invasive mechanical ventilation and ICU admission. Empiric antibiotics were initiated. He was extubated within 48 hours, and later transferred to the pulmonology ward, clinically stable improving under supportive care. Conclusion: RPE develops within hours of rapid re-expansion and is associated with increased vascular permeability.1,2 Gradual decompression and avoidance of early suction are key preventive measures. Management strategies may include the use of high-flow oxygen therapy or CPAP in more severe cases.1 Controlled re-expansion, early recognition and supportive

management improves prognosis.1,2,3

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Keywords : e-expansion pulmonary oedema; pneumothorax; respiratory failure;

BEHIND THE POST-VIRAL VEIL: UNMASKING A GIANT GANGLIONEUROMA IN A 61-YEAR-OLD WOMAN

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Abstract

Ganglioneuromas are rare, benign neurogenic tumours derived from sympathetic ganglia, most commonly located in the posterior mediastinum or retroperitoneum. They typically occur in children or young adults, but can also be diagnosed in older individuals, in whom slow tumour growth and non-specific symptoms make recognition more challenging 1,2,3. We present the case of a 61-year-old woman with a history of anxiety-depressive disorder, fibromyalgia, and dyslipidaemia, who developed persistent dry cough, wheezing, and exertional dyspnoea in the context of a recent influenza infection. She also reported chest tightness, posterior rhinorrhoea, sweating, and reduced appetite. Symptoms did not improve despite multiple courses of antibiotics, corticosteroids, and inhaled bronchodilators. Physical examination revealed decreased breath sounds at the left lung base. Chest CT demonstrated a heterogeneous, predominantly cystic mass with calcifications in the posterior mediastinum. MRI confirmed a well-circumscribed lesion with T2-hyperintensity, internal solid components, and no invasion of adjacent structures. Spectral CT evidenced oesophageal compression and mild contrast enhancement in a solid component. Bronchoscopy was normal, and endoscopic ultrasound showed a heterogeneous lesion abutting but not infiltrating the thoracic aorta. Fine-needle aspiration was nondiagnostic. Following multidisciplinary discussion, complete surgical excision was performed without complications, and histopathology confirmed a ganglioneuroma. The patient recovered well, with complete symptom resolution. This case highlights several important aspects of posterior mediastinal ganglioneuromas: despite often reaching a large size, they remain encapsulated and non-invasive, generating symptoms primarily through compression. Crucially, this tumour was discovered incidentally due to imaging prompted by a concurrent respiratory infection, illustrating how these lesions may otherwise go unnoticed for extended periods. Their typically asymptomatic course and limited detectability on standard chest radiographs contribute to underdiagnosis 5. A multimodality imaging approach is frequently required to guide management 6.

Surgical resection remains the definitive method for diagnosis and treatment, with excellent prognostic outcomes 1,2,3,4.

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Keywords : Ganglioneuroma, Spectral CT, MRI

RX IN THE COMMUNITY – PROXIMITY DIAGNOSTIC MOBILITY, A PROJECT TO BE IMPLEMENTED IN A LOCAL HEALTH UNIT.

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Abstract

The increasing complexity of healthcare and rapid technological advancements present Local Health Units with the challenge of modernizing and optimizing their complementary diagnostic resources. The aim of this work is to present the "Rx in the Community" project, a project to be implemented in a local health unit.

The "RX in the Community – Proximity Diagnostic Mobility" project aims to improve access to diagnostic imaging by bringing a mobile radiography service to the community, especially in remote or hard-to-reach areas, responding to the needs of an aging population with reduced mobility, conducting examinations at home, in integrated continuing care units, rural areas, and residential care homes for the elderly. The goal is to reduce diagnostic response times, decentralize health services, and increase the quality of care, promoting greater proximity and efficiency.

The main stages of the project include planning and acquiring the necessary equipment, training the teams involved to ensure proper operation, implementing the mobile radiography system/equipment, followed by testing and validation to ensure effective functioning. Finally, the service will begin, accompanied by continuous monitoring to guarantee the quality of rapid and efficient diagnoses directly in the community, enhancing the response outside the hospital environment and identifying opportunities for improvement.

The project is part of a healthcare policy that is closer to the community, combining technological innovation with efficiency in the provision of care. The project's structure is based on three pillars: accessibility, quality, and proximity. This model can also be replicated in other units and contexts, representing a structural asset in the reorganization of healthcare.

In short, the "RX in the Community" project represents a concrete opportunity to modernize the way we provide diagnostic imaging care, putting technology at the service of people, with greater accessibility, equity, and efficiency.

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Keywords : Radiology, Community, Integrated care

THERAPEUTIC ADHERENCE IN PATIENTS WITH OSTEOPOROTIC FRACTURES: THE IMPACT OF NURSE-LED TELEPHONE CONSULTATION IN A FRACTURE LIAISON SERVICE

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Abstract

Background: Nurse-led telephone consultation provides continuous follow-up to advise patients and assess pharmacological and non-pharmacological adherence.

Objective: to assess the impact of nurse-led telephone consultation on therapeutic adherence in patients with osteoporotic fractures in a Fracture Liaison Service (FLS)

Material and Methods: Retrospective cohort study involving patients with an osteoporotic fracture diagnosis observed in an FLS between 1 January 2024 and 31 December 2024. Socio-demographic and clinical data were collected at the baseline. Adherence to pharmacological and non-pharmacological therapy were assessed through a nurse-led telephone consultation at 6 and 12 months. A general descriptive analysis was performed, p-value ≤0.05 was statistically significant.

Results: A total of 121 patients were included. The mean age was 77.25±10.85 years and 83,5% were female. Regarding pharmacological treatment, 83.5% of patients initiated therapy, with the majority starting oral bisphosphonates (69.3%). At 6 months, 90.1% of patients adhered to a healthy diet, and 36.4% engaged in regular physical activity. By 12 months, 96.7% of patients maintained good nutrition, and 37.2% continued with regular physical activity. No statistically significant differences were observed concerning adherence to these measures, at both time points, when adjusted to sociodemographic or clinical data. Regarding pharmacological therapy, adherence at 6 months was 62.8%, and at 12 months, 74.8% of patients remained on treatment, with no statistically significant differences observed between the variables.

Conclusion: Nurse-led telephone consultations were very important to promote adherence to pharmacological and non-pharmacological therapy at 12 months. Adherence to physical activity remains low.

Keywords : Therapeutic adherence, osteoporotic fractures, nurse-led telephone consultation

CARDIOVASCULAR EVENTS IN PATIENTS TREATED WITH ROMOSOZUMAB AND OTHER ANTI-OSTEOPOROTIC AGENTS: A COMPARATIVE ANALYSIS USING REAL-WORLD DATA

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Introduction

Romosozumab (RMZ) is a recently approved agent with proven efficacy in treating Osteoporosis. However, its use has been associated with increased cardiovascular (CV) events. This study uses real-world data to describe and compare the occurrence of CV events among patients treated with RMZ and other anti-osteoporotic agents.

Methods

Retrospective study of EudraVigilance reports on CV events associated with RMZ, bisphosphonates (BP), and denosumab (DN) from January2020 to December2024. Reports by non-healthcare professionals, duplicates, or possibly related to more than one anti-osteoporotic treatment were eliminated. Demographics, outcomes, severity criteria, and associated actions were analyzed descriptively. Comparative analysis was performed to evaluate differences across treatments, stratifying by age, sex, event type, outcome, severity criteria, event duration, treatment indication, and approach. Reporting Odds Ratio (ROR) was calculated for RMZ compared to the other treatment groups.

Results

Healthcare professionals reported 33,348 suspect adverse reactions (SARs) in the EudraVigilance database (5,722 RMZ-, 12,246 BP-, and 15,380 DN-related SARs). Of these, 84 CV events were reported for RMZ, 8 for BP, and 10 for DN.

The majority involved females aged 65-85 Years. All CV SARs were associated with at least one severity criteria, and the most reported was the presence of other important medical conditions (78.57% of RMZ -, 50% of BP-, and 90% of DN-related SARs). RMZ was stopped in all cases with available data except one. No significant differences were observed among the treatments regarding event type, outcomes, age or sex distribution, severity criteria, or event duration.

Romosozumab was associated with a significantly higher risk of CV SARs [ROR 22.85, CI (13.72-38.05)].

Conclusion

Our EudraVigilance data analysis revealed that RMZ was associated with a substantially increased risk of CV events (1.47% of all SARs). These findings highlight the need to address this safety issue and consider CV risks in Osteoporosis management.

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Keywords : Osteoporosis, Pharmacovigilance, Romosozumab

DRUG-INDUCED SYSTEMIC LUPUS ERYTHEMATOSUS ASSOCIATED WITH TUMOR NECROSIS FACTOR-ALPHA INHIBITORS

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Abstract

Tumor necrosis factor-alpha inhibitors (iTNF-α) are often used to treat inflammatory rheumatic and intestinal diseases. Although rare, adverse reactions such as iTNF-α-induced systemic lupus erythematosus (SLE) have been reported. The estimated incidence of this reaction ranges from 0.10% to 0.22%, with slightly higher rates for infliximab (INF) (1,2). However, reliable data on its true incidence remains limited (3).

This study aimed to compare the occurrence of iTNF-α-induced SLE associated with adalimumab (ADA), certolizumab (CER), etanercept (ETA), golimumab (GOL), and INF by analyzing real-world data from the European EudraVigilance database. A retrospective analysis was conducted on reports of suspected adverse reactions (SARs), submitted between January 2020-December 2024, by healthcare professionals within the European Economic Area. Cases related to other medications or duplicate entries were excluded. A descriptive analysis was performed, followed by the Reporting Odds Ratio (ROR).

A total of 161,868 SARs related to iTNF-α agents were identified. Of these, 113 concerned iTNF-α-induced SLE and met our inclusion criteria. INF was associated with the highest number of SLE reports (n=59), followed by ADA (31), ETA (13), CER (6), and GOL (4). Most cases involved women aged 18–64, and common indications were rheumatoid arthritis and inflammatory bowel disease. Most analyzed SARs were classified as serious by the reporter, with hospitalization and the presence of medically important conditions often cited as criteria for seriousness in all groups. Finally, ROR analysis showed that SLE was more frequently reported with INF [ROR: 1.94; 95% CI (1.34–2.80)], whereas ETA had the lowest reporting frequency [ROR: 0.56; 95% CI (0.31–0.99)]. The other iTNF-α agents showed comparable RORs.

In conclusion, our analysis of real-world data from the EudraVigilance database revealed an association between INF and an increased reporting rate of iTNF-α-induced SLE, a finding aligned with current scientific evidence.

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The main author obtained her Master's degree in Medicine from the Faculdade de Medicina da Universidade do Porto in 2019. She is currently completing the fifth year of her speciality training in Rheumatology. As part of her clinical and academic development, she has been actively involved in research across several fields, including pharmacovigilance, autoimmunity, and idiopathic inflammatory myopathies.

Keywords : pharmacovigilance; drug-induced systemic lupus erythematosus; tumor necrosis factor-alpha inhibitors

CHARACTERIZATION OF PULMONARY INVOLVEMENT IN SYSTEMIC LUPUS ERYTHEMATOSUS: INSIGHTS FROM A MULTICENTRE PORTUGUESE COHORT

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Abstract

Objectives: Pulmonary involvement is a frequent and significant feature of SLE, although its clinical spectrum and outcomes remain poorly defined1,2. This study aims to characterize the clinical features of pulmonary involvement in a multicentre Portuguese SLE cohort.

Methods: A multicentric, retrospective study was conducted across five Portuguese Rheumatology Departments, including adult SLE patients with at least one pulmonary manifestation (PM) attributable to SLE. Demographic and clinical data were collected, and a descriptive analysis was performed.

Results: A total of 51 SLE patients with PMs were included. The majority were female (74.5%), with a mean age at SLE diagnosis of 37.0 ± 17.5 years and a mean age at first PM of 42.9 ± 17.6 years. Most patients were non-smokers (71.4%), and chronic pulmonary diseases were infrequent (3.9–5.9%). PM occurred at the time of SLE diagnosis in 52.9% of patients, and after a mean interval of 12.9 ± 9.9 years in the remaining cases. The most frequent PMs were pleural involvement (56.9%) and interstitial lung disease (ILD) (21.6%), followed by pulmonary embolism (15.7%), pulmonary arterial hypertension (11.8%), and acute lupus pneumonitis (5.9%). Only one patient had shrinking lung syndrome, and 15.7% of patients presented more than one PM. At the time of PM, 44 of 46 patients (95.7) were symptomatic. The most common symptoms were pleuritic pain (54.5%), dyspnea (43.2%), fever (17.8%) and cough (15.9%).. During the pulmonary episode, 40.8% of patients were hospitalized and 8.3% required oxygen therapy. There were five deaths overall, three

due to infection, one related to SLE-associated PM, and one from cardiovascular disease.

Conclusions: PMs in this SLE cohort represented significant clinical burden, with 95.7% of patients symptomatic and 40.8% hospitalized. Pleural disease was the most frequent manifestation, while ILD and pulmonary embolism highlight the need for a high index of suspicion to mitigate these complications.

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Biography of presenting author

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Keywords : Systemic Lupus Erythematosus, Pulmonary Involvement, Multicentre Cohort

CHARACTERIZATION OF SLEEP DISTURBANCE IN SYSTEMIC LUPUS ERYTHEMATOSUS: INSIGHTS FROM A REAL-WORLD PORTUGUESE COHORT

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Abstract

Background:Sleep disturbance is a frequent and underrecognized feature of systemic lupus erythematosus (SLE). Despite its clinical relevance, few real-world studies have comprehensively evaluated the determinants of poor sleep quality and its relationship with patient-reported outcomes (PROs).

Objectives:To assess the prevalence of poor sleep quality in SLE patients and explore its demographic, clinical, and PROs associations.

Methods:Cross-sectional study including adult SLE patients fulfilling the 2019 EULAR/ACR classification criteria followed in a Rheumatology outpatient clinic. Patients with pre-existing sleep disorder were excluded. Demographic and clinical data, disease activity and damage scores, and patient reported outcomes (PROs) were collected. Sleep quality was evaluated through the Pittsburgh Sleep Quality Index (PSQI), with scores >5 indicating poor sleep.1 Data from the most recent visit (January–June 2025) were analyzed. Univariate tests, Spearman's correlations, and logistic regression were used to explore associations with PSQI.

Results:Fifty-three SLE patients were included (female: 92.5%; mean age:45.8±13.4 years; mean disease duration:15.7±9.3 years). Poor sleep quality was observed in 58.5% of patients (mean PSQI of 7.3±3.4). PSQI score showed strong, significant correlations with lower quality of life (r=0.651, p<0.001), greater fatigue (r=-0.533, p<0.001), higher depression (r=0.492,p<0.001), higher anxiety (r=0.414,p=0.002), and lower function (r=0.490,p<0.001). Poorer sleepers were older (p=0.017) and less frequently treated with biologic therapies (p=0.027). No correlations were observed with disease activity or damage scores. In multivariate analysis, higher depression (OR 1.4 [1.1–1.8],p=0.010) and anxiety (OR 1.5 [1.1–2.0],p=0.008) remained independently associated with poor sleep.

Conclusions:Poor sleep quality was highly prevalent and associated with older age and less frequent

use of biologic therapies. Worse sleep was correlated with greater fatigue, higher levels of anxiety and depression, reduced physical function, and impaired quality of life. Psychological distress, particularly anxiety and depression, independently predicted poor sleep, underscoring the need to integrate mental health and behavioural assessment into SLE management to improve overall well-being.

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Biography of presenting author

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Keywords : Systemic Lupus Erythematosus, Sleep, Quality of life

IMMUNE CHECKPOINT INHIBITORS-ASSOCIATED MYOSITIS, MYOCARDITIS, AND MYASTHENIA GRAVIS OVERLAP SYNDROME: REAL-WORLD DATA FROM THE EUDRAVIGILANCE

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Abstract

Background: Immune checkpoint inhibitors (ICIs) have greatly improved the prognosis of cancer patients1. ICIs block immune checkpoints, enhancing T cell activity and triggering immune-related adverse events2. The occurrence of ICI-associated myositis, myocarditis, and myasthenia gravis overlap syndrome is rare but carries high mortality, underscoring the need for prompt recognition3.

Objectives: To evaluate the co-occurrence of myositis, myocarditis and myasthenia gravis as suspected adverse reactions (SARs) of ICIs in a real-world pharmacovigilance database.

Methods: This study employed the EudraVigilance database to collect adverse events of six ICIs – Atezolizumab, Avelumab, Cemiplimab, Durvalumab, Nivolumab and Pembrolizumab - between January 2021 and December 2023. Demographic data, indication, outcome, and action taken regarding the drug were retrieved from the database. A descriptive analysis was performed. A comparative analysis was conducted between patients with isolated myositis and those with overlap with myocarditis and myasthenia gravis.

Results: A total of 279 myositis-related SARs were included (1.7% of all ICIs-related SARs). Of those, 49.8% had isolated myositis, 43.0% had concomitant myocarditis, 12.9% had concomitant myasthenia gravis, and 6.1% had an overlap myositis, myocarditis and myasthenia gravis, representing 0.10% of all ICIs related SARs. Regarding patients with this triad, most cases concerned men (70.6%) aged between 65-85 years (70.6%). Among patients experiencing these SARs, 47.1% are known to have experienced a fatal outcome (valid percentage 80.0%). Most patients were being treated with pembrolizumab (47.1%) and nivolumab (35.3%). Patients with concomitant myocarditis and myasthenia gravis had a significantly higher mortality rate (80.0%) compared to those with isolated myositis (15.6%, $p < 0.01$). A higher proportion of these patients

were being treated for melanoma (58.8% vs. 33.8%, p = 0.043).

Conclusion: Despite its rarity, the myositis–myocarditis–myasthenia gravis triad is linked to high mortality. Our findings reinforce reports in the literature suggesting a link between this triad and an underlying melanoma diagnosis.

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Biography of presenting author

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Keywords : Immune Checkpoint Inhibitors, Pharmacovigilance

EXPLORING OCCUPATIONAL BACKGROUND IN SYSTEMIC SCLEROSIS – INSIGHTS FROM A SINGLE - CENTER STUDY

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Abstract

Introduction: Systemic sclerosis (SSc) is a immune-mediated connective tissue disease, characterized by vasculopathy and fibrosis (1, 2). Environmental triggers in genetically predisposed individuals may play a role in its pathogenesis (3, 4). Evidence of geographic clustering provides insight into the significance of environmental factors (3).Our study aimed to describe SSc patients' occupational background and explore its association with clinical features.

Material and Methods: Retrospective cohort study including consecutive SSc patients, followed in a single Rheumatology Department. Patients reported all jobs held for over six months before SSc diagnosis, classified per International Labour Office. (5). Demographic and clinical data were collected. Multimorbidity was defined as the co-occurrence of at least two chronic conditions in the same patient (6). Statistical analysis was performed as appropriate. A p value ≤ 0.05 was considered statistically significant.

Results: We included 42 SSc patients (81.0% females, mean age 60.9 ± 10.2 years). Most patients (54.8%) had more than one different occupation in their lifetime. Sixteen patients (38.1%) had a history of manufacturing employment. Employment in ceramics factories was particularly common (16.7%), followed by textile factories (9.5%). History of work in metallurgy was present in 11.9% of patients and work in construction was reported by 7.1% Employment in construction, metallurgy and electrical work was more frequent in male patients. Previous work in manufacturing was associated with multimorbidity p = 0.023). Work in construction was significantly associated with the diffuse SSc phenotype (corrected OR 33.9, 95% CI [1.39, 826]; p = 0.040) as opposed to the limited phenotype. No other associations were found.

Conclusion: Previous manufacturing employment was common in our cohort, particularly in ceramic factories. Manufacturing work history was associated with multimorbidity. Work in construction was associated with diffuse SSc phenotype. Further nationwide studies are needed to explore the role of occupational factors in SSc.

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Biography of presenting author

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Keywords : Systemic Sclerosis, Occupational background, Retrospective study

METABOLIC ADAPTATIONS ASSOCIATED WITH ER STRESS AND MECHANOSENSING IN PLASMACYTOID DENDRITIC CELLS: INSIGHTS INTO FIBROSIS IN SYSTEMIC SCLEROSIS

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Abstract

Systemic sclerosis (SSc), also known as scleroderma, is a rare autoimmune disease marked by immune dysregulation, vasculopathy, and fibrosis. Plasmacytoid dendritic cells (pDCs) have recently been recognized as important players in the progression of fibrosis. Since fibrosis alters the mechanical properties of tissues, these changes can affect immune cell activation, migration, and metabolism. However, the role of mechanosensing and metabolism in pDCs within the context of SSc remains largely underexplored.

In this study we examined how substrate stiffness influences the exometabolomic profile of pDCs, with an NMR-based metabolomics approach. CAL-1 pDCs were cultured in commercially available substrates that mimic physiological and fibrotic tissue stiffness, both in a monoculture setting, as well as co-cultured with IMR-90 lung fibroblasts. We found that stiffer environments alter pDC metabolism, reflected by changes in the consumption/excretion of metabolites from/to the cell culture medium. We also evaluated how glycolysis modulation and ER (Endoplasmic Reticulum) stress can affect extracellular matrix production and the exometabolomic profile of these cells. Preliminary results indicate that glycolysis modulation and ER stress can promote enhanced fibroblast activation and increased expression of extracellular matrix components. These results suggest that mechanosensing plays a key role in pDC function, and that further exploration of pDC metabolism in the context of fibrosis could be an interesting strategy in modulating pDC function.

Overall, these findings shed new light on the mechanisms regulating fibrosis in systemic sclerosis and highlight pDC modulation as a promising target for anti-fibrotic immunotherapy.

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Acknowledgments

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Biography of presenting author

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Keywords : Systemic Sclerosis, Metabolomics, Fibrosis

VALIDATION AND CLINICAL INTERPRETABILITY OF PORTUGUESE PSAID IN THE PORTUGUESE POPULATION- PRELIMINARY ANALYSIS

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Objectives:
To validate the Psoriatic Arthritis Impact of Disease questionnaire (PsAID-12) in the Portuguese population and evaluate its clinical applicability.
Methods:
Single-center study including Portuguese patients meeting the CASPAR criteria for Psoriatic arthritis (PsA). Reliability was assessed using Cronbach's alpha and intraclass
correlation coefficient (ICC). Construct validity was evaluated through exploratory factor analysis and Spearman correlations with other patient-reported outcome measures (PROMs) and disease activity measures [Disease Activity Score in 28 Joints with C-Reactive Protein (DAS28-CRP), Health Assessment Questionnaire (HAQ-DI), Functional Assessment of Chronic Illness Therapy- fatigue (FACIT-F), Visual Analog Scale for Pain (VAS Pain), Visual Analog Scale for Disease Activity (VAS Disease), Disease Activity in Psoriatic Arthritis (DAPSA)]. Additionally, the interpretability of PsAID-12 was explored in relation to Minimum disease activity (MDA) and DAPSA-defined disease activity categories.
Results:
78 patients were enrolled in the study, 46 (58.97%) were female, with a mean age of 54.98± 10.97 years. Peripheral symmetrical polyarthritis was the predominant presentation (47 patients, 60.30%). Internal consistency was excellent (Cronbach's alpha = 0.96). Exploratory factor analysis identified one factor, indicating a cohesive measure of disease impact.
PsAID-12 demonstrated strong construct validity, correlating very strongly with VAS Pain ($r=0.91$, $p<0.001$) and VAS Disease ($r=0.87$, $p<0.001$), and strongly with HAQ ($r=0.75$, $p<0.001$), DAS28-CRP ($r=0.59$, $p<0.01$) and FACIT ($r=-0.68$, $p<0.01$). PsAID-12 scores differed significantly across MDA categories, with higher scores in non-MDA patients (median 4.55 [4.20] Vs 1.10 [2.15] Vs 0.00 [0.88], $p<0.0001$). Similarly, PsAID-12 scores were significantly higher in patients with moderate/high DAPSA activity compared to those in remission/low activity (median 2.70 [4.23] Vs

1.90 [2.25], p<0.0001).

Conclusion:

Our study suggests the Portuguese version of PsAID-12 is a reliable and valid instrument for assessing the impact of PsA. Larger study with a nationally representative sample is essential to effectively validate the questionnaire in the Portuguese population.

Biography of presenting author

5th year Rheumatology Resident at Rheumatology Department, Unidade Local de Saude da Região de Aveiro

Keywords : Psoriatic arthritis, Patient related outcomes

UNDERSTANDING FRAILTY IN RHEUMATOID ARTHRITIS AND PSORIATIC ARTHRITIS: A COMPARATIVE ANALYSIS

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Abstract

BACKGROUND: Frailty, characterized by reduced physiological reserve and increased vulnerability to stressors, is common in chronic inflammatory conditions such as rheumatoid arthritis (RA) and psoriatic arthritis (PsA).

OBJECTIVE: To explore the risk factors associated with higher frailty risk in RA and PsA patients and evaluate their overall health impact.

METHODS: This unicentric, cross-sectional study included patients with RA and PsA meeting the ACR/EULAR2010 and CASPAR criteria, respectively. Frailty was assessed using validated Portuguese version of FRAIL-S (score 0-5), classifying patients as robust (0), pre-frail (1-2) or frail (≥3). Demographics, clinical and patient-reported outcomes, including patient global assessment [PGA], pain, function, and quality of life, were collected. Associations with frailty risk were evaluated using parametric and non-parametric tests followed by multivariate analysis.

RESULTS: A total of 112 patients (70 RA, 42 PsA) were included: 28 (25,0%) patients were identified at high risk of frailty (21 RA, 7 PsA), 40 (35,7%) as pre-frail (27 RA, 13 PsA) and 44 (39,3%) as robust (22 RA, 22 PsA). High frailty risk was linked to older age, longer disease duration, higher PGA score, multimorbidity, and the presence of erosions in both RA and PsA. In RA, there was also an association with lower body mass index, extra-articular disease, osteoporosis, lower function, and lower quality of life. No significant differences were found regarding tender/swollen joints, disease activity, acute phase reactants, and use of b/tsDMARDs.

CONCLUSION: Frailty risk is prevalent in our cohort of RA and PsA patients, particularly among older patients with longer disease duration, higher PGA, multimorbidity, and erosive disease. This risk is also higher in RA patients with lower BMI and extra-articular disease, significantly impacting

function and quality of life. Interestingly, traditional disease activity scores did not correlate with frailty risk, suggesting that frailty primarily reflects cumulative disease damage rather than current disease activity.

Biography of presenting author

Integrated Masters in Medicine, Faculty of Medicine, University of Coimbra (2014-2020)

Internship in Hematology, Nephrology, General Surgery and Thoracic Surgery in Ljubljana University Medical Centre (2020)

General Residency in Unidade Local de Saúde de Vila Nova de Gaia / Espinho (2021)

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Keywords : Rheumatoid Arthritis, Psoriatic Arthritis, Frailty

HEALTH-RELATED QUALITY OF LIFE - A MULTIDISCIPLINARY APPROACH IN PSORIATIC DISEASE

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Abstract

Introduction: Psoriatic Disease (PsD) is a chronic disease that affects the musculoskeletal system, skin, and nails (1). PsD negatively affects health-related Quality of Life (HRQoL)2, highlighting the need for a comprehensive approach. Our study aimed to analyze the HRQoL in PsD patients and to identify influencing factors. Methods: Retrospective cross-sectional study including consecutive adult patients with PsD, followed in a combined dermatology-rheumatology Clinic, between September 2018 and April 2024. Demographic and clinical data were collected. A DLQI (Dermatology Life Quality Index) or PsAQoL (Psoriatic Arthritis Quality of Life) score greater than 10 indicates poor quality of life. Patients were grouped based on their quality-of-life scores. Descriptive and statistical analysis were performed, as appropriate, and a p-value ≤ 0.05 was considered statistically significant. Results: Fifty-eight patients were included. Of the 47 patients who completed both the DLQI and PsAQoL questionnaires, 21.3% had scores > 10 on both, while 19.1% had only a PsAQoL >10 and 14.9% had only DLQI >10. Patients with both DLQI and PsAQoL >10 had a higher Health Assessment Questionnaire ($p = 0.008$), Patient Pain Assessment ($p = 0.041$), and Patient Global Assessment ($p = 0.004$). An association was observed between the absence of bDMARD treatment and both scores elevated ($p = 0.042$). Patients with only PsAQoL >10 were older ($p= 0.011$). Fewer patients were in remission, $p= 0.012$, had more tender and swollen joints and higher DAS28-ESR and DAS28-CRP 3 variables, $p < 0.05$. Rheumatologist global assessment was also higher ($p = 0.002$). No associations were found in patients with only DLQI > 10.Conclusions: PsAQoL is linked to articular disease activity and global disease assessment by the Rheumatologist. Patients with both high PsAQoL and DLQI reported worse reported outcomes, but no association was found with disease activity or characteristics, underscoring HRQoL's multidimensional nature,

requiring a holistic approach.

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Biography of presenting author

Fourth-year Rheumatology resident at the Unidade Local de Saúde da Região de Aveiro.

Keywords : Quality of life, Psoriatic Disease

EDUCATIONAL NEEDS OF PEOPLE WITH RHEUMATOID ARTHRITIS IN BRAZIL: INSIGHTS INTO TREATMENT, EXERCISE, AND PHYSIOTHERAPY

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Abstract

Background: Rheumatoid arthritis (RA) is a chronic, systemic, and inflammatory disease that affects quality of life and functionality.1,2 Its treatment is multimodal, involving pharmacological and non-pharmacological approaches such as exercise and health education.3–5 Health education is strongly recommended, as it helps patients understand the adaptations required to cope with the impairments caused by the disease.3 However, there is no consensus on which areas of knowledge are essential for this population. Investigating these educational needs is fundamental to developing patient-centered therapeutic strategies. Objective: To comprehensively assess the health-related educational needs of Brazilian individuals with RA, focusing on information related to treatment, exercise, and physiotherapy. Methods: This study was conducted through an online questionnaire. Adults with a diagnosis of RA were recruited via social media. The questionnaire included demographic data and items assessing educational needs using a 5-point Likert scale. The data were analyzed descriptively and tabulated in Microsoft Excel. Results: One hundred ninety-two participants were included (185 females and 7 males; average age: 47.7 years). Information about medication and recommended treatment was rated as “extremely important” by 74% of participants. In contrast, topics related to physiotherapy received the lowest ratings (49.5–51.6%) and were the only ones also classified as “not important.” Regarding exercise, 68.8% considered it very important to understand why certain movements should be avoided, and around 60% valued information about exercise type and safety. Conclusion: The findings reinforce the need for targeted health education for people with RA. Although medication knowledge is highly valued, the contrast between the low importance attributed to physiotherapy and the high importance given to exercise reveals a conceptual gap about its role in treatment. This underscores the need for educational strategies that clarify the complementarity between exercise and physiotherapy, promoting a better understanding of their contribution to safe and effective disease management.

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Acknowledgments: This work was supported by the Coordination of Superior Level Staff Improvement (grant #001) and The São Paulo State Research Foundation (grant 2023/12909-5).

Biography of presenting author

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Keywords : Educational needs, Health education, Rheumatoid arthritis

CATASTROPHIZING, KINESIOPHOBIA, AND PAIN SEVERITY AND INTERFERENCE IN OLDER ADULTS WITH CHRONIC MUSCULOSKELETAL PAIN AT BASELINE AND 3-MONTH FOLLOW-UP

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Abstract

The aging of the global population has been increasing(1), with over 50% of older adults affected by chronic pain(2), and its prevalence is expected to increase over time(3). Psychological factors such as catastrophizing and kinesiophobia have been extensively studied and linked to chronic pain severity and interference in adults(4–6). However, the literature on older adults is scarce, and conflicting. This study aims to investigate whether catastrophizing and kinesiophobia are associated with pain severity and pain interference in older adults at baseline and at 3-month follow-up. Sixty-seven participants aged 65 years or older (73.8 ± 5.8 years) with chronic musculoskeletal pain were evaluated. Assessments included sociodemographic variables (age, gender, and years of formal education), clinical information (comorbidities, body mass index, and number of falls), physical activity level (Rapid Assessment of Physical Activity), and pain-related variables that comprised pain duration, frequency, number of pain sites, pain location (body chart), pain phenotype (PainDETECT), pain severity and interference (Brief Pain Inventory), pain catastrophizing (Pain Catastrophizing Scale), and kinesiophobia (Tampa Scale for Kinesiophobia). At the 3-month follow-up, pain severity and pain interference were re-evaluated. At baseline, pain catastrophizing explained 46% of the variance in pain severity (adjusted R^2=0.46,$p<0.001$). Years of formal education, pain catastrophizing, and kinesiophobia were significant predictors and together explained 59% of the variance in pain interference (adjusted R^2=0.59,$p\leq0.001$). Baseline years of formal education and pain severity at baseline were significant predictors of pain severity at the 3-month follow-up (adjusted R^2=0.46,$p\leq0.028$). Pain interference at baseline and physical activity at baseline were significant predictors of pain interference at the 3-month follow-up (adjusted R^2=0.58,$p\leq0.001$).This study emphasizes the clinical relevance of identifying and managing pain catastrophizing and kinesiophobia in older adults due to its association with current levels of pain severity and interference and its potential indirect association with future pain severity and interference.

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The authors declare no conflicts of interest.

Biography of presenting author
I've been a Physiotherapist since 2014. I graduated from the School of Health Sciences at the Polytechnic University of Leiria and obtained a master's degree in Musculoskeletal Physiotherapy from the School of Health Sciences at the University of Aveiro in 2024. This year, I began the Doctoral Program in Rehabilitation Sciences at the Department of Medical Sciences and the School of Health Sciences at the University of Aveiro. I am currently engaged in clinical practice, working daily with older adults as well as individuals with intellectual disabilities and impairments.

Keywords : Chronic pain in older adults, severity and interference, catastrophizing and kinesiophobia

PAIN AND COGNITIVE FUNCTION IN INDIVIDUALS WITH PRIMARY CHRONIC LOW BACK PAIN

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Abstract

Background: Evidence suggests that individuals with chronic pain tend to have worse cognitive function (CF) compared to asymptomatic individuals.1–3 Three major explanations have been proposed: (1)competition for cortical and subcortical structures, (2)chemical dysregulation involving neuromodulators, and (3)cortical reorganization associated with chronic pain.4 Regarding primary chronic low back pain (CLBP), the available evidence suggests a potential reduction in CF compared to pain-free participants. Nevertheless, the existing body of research is limited and characterized by several methodological shortcomings, including a high risk of bias and suboptimal study quality.5

Objective: To compare CF between adults with primary CLBP and asymptomatic adults.

Methods: An observational and longitudinal design was adopted, with assessments conducted at three time points (T1-initial assessment; T2-1week after T1; T3-3months after T1). Participants were characterized by age, sex, pain intensity and CF. CF was assessed using Brain on Track, a self-administered digital solution that evaluates various cognitive domains (attention, memory, executive function, language, and constructive ability).6,7 The overall score was used for statistical purposes.

Results: Sixty individuals were recruited, thirty per group (CLBP: mean age=39.2±8.2years, 56.7% female; asymptomatic: mean age=38.8±8.7years, 56.7% female). The median pain intensity was 3.5±4.0 for CLBP participants. Mean group scores for CF at T1, T2 and T3 were 236.0±38.1,

254.4±31.7 and 250.0±36.5 for participants with CLBP and 237.8±39.9, 259.8±49.6 and 260.0±65.3 for asymptomatic participants, respectively. No group-by-time interaction or main group effect was

observed (p>0.05). There was a significant time effect (p=<0.001), with improvements in CF between T1-T2 and T1-T3.

Conclusion: Young individuals with relatively low-intensity CLBP do not exhibit worse CF when compared with pain-free individuals. However, the 4-point decline observed between T2-T3 in the CLBP group raises the question of whether, over the long-term, this decrease in CF might become more pronounced. Further research is needed in individuals with more intense CLBP and longer follow-ups.

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Biography of presenting author

Patrícia Simões holds a Master's degree in Physiotherapy, specializing in Musculoskeletal Physiotherapy, from the School of Health Sciences at the University of Aveiro. Since September 2023, she has been an Invited Assistant at the same institution, lecturing on musculoskeletal assessment and intervention and supervises undergraduate and postgraduate students during clinical placements. Previously, she worked as a research fellow at University of Aveiro, contributing to several publications in scientific journals and conferences, focusing on mobile applications for promoting physical activity and methodological quality assessment in e-health research. She has 8 Scopus indexed publications with 126 citations and an H-index of 6.

Keywords : Primary chronic low back pain, cognitive function, Brain on Track

COCREATION OF A DIGITAL INTERVENTION ON PAIN SCIENCE EDUCATION FOR OLDER ADULTS WITH CHRONIC PAIN: A STUDY PROTOCOL AND PRELIMINARY RESULTS

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Introduction and aim: The involvement of users in the development of digital interventions has been advocated to improve the overall quality, usability, and meaningfulness of the intervention. Including users since the very beginning of the development phase ensures that the interventions address their needs and the particularities, potentially increasing their impact. This study aims to co-create a digital pain science education (PSE) intervention in the form of animated videos involving older adults with pain and health professionals. PSE involves explaining pain using lay terms and metaphors to promote self-management, and, therefore, contents covered need to be aligned with patients' needs and conveyed in a manner that is appealing and understandable.
Methods: A series of co-creation workshops will be conducted with 15 participants, divided into three different groups (older adults with chronic pain, physiotherapists, and general practitioners). Participants will be invited to comment on the content of PSE sessions, the distribution of content throughout the sessions, the digital materials (videos), and the structure and format of the intervention delivery. Workshops occur in a cycle of workshops with health professionals, production of materials, workshops with older adults, further refinement of materials, and repetition of the cycle till the final intervention is developed.
Results: A first workshop with physiotherapists provided insight into the content of PSE, distribution of the content across sessions, examples of metaphors to convey complex concepts, and the visual image of the digital materials, leading to the production of materials for one session that will be further enhanced in future co-creation workshops with other groups of participants.
Conclusions and implications: The cocreation process enriches the intervention by considering what is relevant for both groups of users, patients, and health professionals. The materials developed may support clinical settings in delivering evidence-based PSE and supporting self-management for older adults with pain.

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Biography of presenting author

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Keywords : Pain Science Education, Older Adults, Digital Intervention

PAIN SCIENCE EDUCATION FOR OLDER ADULTS: A SCOPING REVIEW PROTOCOL

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Abstract

Introduction: Pain science education is a common intervention for adults with pain; however, its application (methods, content, and dosage) to older adults remains unclear.

Objective: The objective of this scoping review is to characterise the content, dosage, and procedures currently used in the administration of pain science education for older adults.

Methods: We will include studies that report on pain science education for older adults (mean age of at least 60 years old) with acute or chronic musculoskeletal pain, administered in any context. Both experimental and quasi-experimental study designs, including randomized controlled trials, non-randomized controlled trials, before and after studies, and interrupted time-series studies, will be included. In addition, this review will also consider descriptive observational study designs, including case series and individual case reports. PubMed, Web of Science, Scopus, Scielo, and EBSCO databases will be searched since inception, and no limits will be used. Titles, abstracts, and full texts will be screened independently by two authors. Data extraction will also be performed independently by two authors. Data will be analysed qualitatively and presented in tables and graphs. Data on the study and sample will be extracted from papers included in the scoping review by two or more independent reviewers using a data extraction tool developed by the reviewers. The data extracted will include specific details about the participants (age, country, study design, setting, sample size, age, percentage of females, years of formal education, clinical condition, intervention, comparison, outcomes, assessment timepoints and main results). Data on the intervention will be extracted (contents covered, number of sessions, duration, and distribution of contents per session, using the adapted version of the Tidier checklist on educational interventions [1].

Conclusions: The results of this scoping review will inform the content of PSE for future clinical trials on the effectiveness of PSE for older adults.

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Keywords : Pain Science Education, Older Adults, Scoping Review

REDUCED CALCIUM CATION CHANNEL EXPRESSION AND ITS IMPLICATIONS IN MYOTONIC DYSTROPHY TYPE 1

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Abstract

Myotonic Dystrophy Type 1 (DM1) is the most common adult-onset muscular dystrophy, affecting approximately 1 in 3,000 to 8,000 individuals. It is caused by an unstable CTG repeat expansion in the Dystrophia Myotonica Protein Kinase (DMPK) gene, resulting in myotonia, progressive muscle wasting and atrophy leading to multisystemic complications. Although dysregulated protein phosphorylation has been implicated in DM1, the molecular mechanisms underlying altered calcium signaling remain incompletely understood. This study aimed to investigate molecular changes contributing to calcium imbalance and muscle dysfunction in DM1 and to identify potential therapeutic targets. Quantitative proteomics and phosphoproteomics were performed on Coriell DM1 patient-derived fibroblasts to examine protein expression and phosphorylation alterations. Initial analyses highlighted significant changes in a calcium cation channel involved in calcium homeostasis and muscle contraction. Validation by immunoblotting and immunofluorescence confirmed increased channel expression and altered subcellular localization, suggesting enhanced calcium influx. Extending these observations, additional immunoblot analyses of DM1 fibroblasts from patients at the Centro Hospitalar Tâmega e Sousa (DM1 Cohort) corroborated a tendency toward elevated calcium channel levels, reinforcing the importance of this channel in DM1 pathophysiology. Dysregulated calcium signaling may contribute to sustained intracellular Ca^{2+} elevation, linking to myotonia and impaired muscle function. Overall, these findings underscore calcium channel dysregulation as a central feature of DM1 and provide a rationale for targeting this pathway therapeutically. The study highlights the value of patient-specific molecular profiling in understanding disease mechanisms and guiding the development of interventions aimed at restoring calcium balance and improving muscle function in DM1.

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This work was carried out within the scope of the project "BIOMARK@DM1-Identificação de Biomarcadores não invasivos para a Distrofia Miotónica Tipo 1", supported by the budgets of the COMPETE 2030 Operational Program under the project COMPETE 2030-FEDER-00838100 (Ref. SGO: 17081), through its FEDER component. This work was also supported by UID 4501 – Institute of Biomedicine, Aveiro, FCT/MCTES, COMPETE 2020 Program, QREN and European Union (Fundo Europeu de Desenvolvimento Regional), EPIC-XS (project 823839, Horizon 2020) and FCT studentship (2024.03977.BD).

Biography of presenting author

Ana Cruz earned her BSc in Biomedical Sciences (2021) and MSc in Molecular Biomedicine (2023) from University of Aveiro. She developed strong skills in cell culture, microscopy, immunoblotting, immunocytochemistry and bioinformatics. Through a four-month internship and a year-long MSc thesis, she identified key molecular players in Myotonic Dystrophy Type 1 (DM1), resulting in a research paper and three presentations. Ana later completed an FCT-funded fellowship on Alzheimer's research, broadening her expertise in neurobiology. In 2024, she received an FCT PhD grant to study calcium channel targeting in DM1, leading to one publication and an oral presentation.

Keywords : Myotonic Dystrophy Type 1, Calcium Signaling, Therapeutic Targets

EXPLORING THE ROLE OF GALECTINS IN THE PATHOPHYSIOLOGY OF NEUROMUSCULAR DISEASES: A SYSTEMATIC REVIEW

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Abstract

Galectins are a family of proteins with an impact on the regulation of cellular processes, such as inflammation, apoptosis and regeneration. There is increasing evidence that galectins, particularly galectin-1, -3, -8, and -9, and galectin-3 binding protein may play significant roles in the pathophysiology of some neuromuscular diseases, namely Duchenne Muscular Dystrophy (DMD), Limb-Girdle Muscular Dystrophy (LGMD), Merosin-Deficient Congenital Muscular Dystrophy type 1A (MDC1A) and Amyotrophic Lateral Sclerosis (ALS). Further, they may play a fundamental role in their diagnosis and prognosis. This systematic review aims to compile and analyse the published studies that describe the impact of these galectins in the mentioned diseases, mostly when variations in their expression occur. The PubMed and Web of Science databases were used to search. From a total of 142 articles screened, 56 were included for qualitative analysis, from which we retrieved information regarding the galectin's protein levels for each disease. The effects of the galectins discussed appear to be influenced by the specific cell type in which they are expressed, their concentration, the target tissue, and the stage and progression of the respective disease. However, the role of these proteins as potential biomarkers remains complex and not yet fully understood, highlighting the need for further studies to demonstrate their relevance in a clinical and therapeutic approaches.

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Este trabalho foi desenvolvido no âmbito do projeto 'BIOMARK@DM1-Identificação de Biomarcadores não invasivos para a Distrofia Miotónica Tipo 1', suportado pelos orçamentos do Programa Operacional COMPETE 2030 no âmbito do projeto COMPETE 2030-FEDER-00838100 (Ref.ª SGO: 17081), na sua componente FEDER. This work was also supported by the UID 4501-Instituto de Biomedicina—Aveiro, the FCT/MCTES, the COMPETE 2020 Program, the QREN and the European Union (Fundo Europeu de Desenvolvimento Regional).

Biography of presenting author

André Moreira and Marta Fernandes earned their BSc in Biomedical Sciences (2025) from University of Aveiro. They started developing this work during their last semester, within the scope of the Biomedical Research course unit. André is nowadays in his MSc in Clinical Investigation in the Faculty of Medicine of University of Lisbon, whereas Marta is performing her MSc in Biochemistry at University of Aveiro.

Keywords : Galectins, Muscular Dystrophies, Amyotrophic Lateral Sclerosis

PERONEAL NEUROMA AND A CHANGING FOOT: THE SURPRISING IMPACT OF TENDON GRAFT SURGERY COMBINED WITH PERSONALIZED PHYSIOTHERAPY

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1 - Fisioterapia; 2 - Medicina

Abstract

A neuroma is a disorganized proliferation of nerve fibers, Schwann cells, and connective tissue, which arises in response to traumatic injuries or chronic inflammation of peripheral nerves[1]. This can cause intense pain and incapacitating neuralgia, compromising daily activities[1], "electric shock" sensation, burning, paresthesia, limited movement.

In cases of irreversible nerve damage, muscle and tendon transfer is a surgical technique of choice. Physiotherapy plays an essential role in recovery, focusing on early therapeutic exercise, electrical stimulation, and neurodynamic mobilization[5].

This case study describes the functional recovery of a patient who underwent resection of a peroneal nerve neuroma, associated with tarsal tunnel syndrome. The motor deficit compromised dorsiflexion and the function of the left foot. The surgery included the resection of the neuroma, a graft of the anterior tibial tendon, and fixation of a half tendon in the cuboid bone.

This work aims to demonstrate that the combination of tendon graft surgery with physiotherapy optimizes functional outcomes and quality of life.

The physiotherapy plan included a detailed initial assessment, definition of short, medium, and long-term therapeutic goals, an intervention plan, progression criteria, and home exercises. Measurement instruments such as the goniometer, the visual analog scale (VAS), the Foot Function Index (FFI), and the neuropathic pain scale (DN4) were used.

The results showed a significant improvement in ankle and toe dorsiflexion, with an increase in joint range of motion from 5° to 18°, a reduction in pain (VAS: 8/10 to 2/10), and an improvement in foot function (FFI: 85% to 25%). A decrease in neuropathic symptoms was also observed, with a reduction in the score on the DN4.

It is concluded that a multidisciplinary approach between surgery and physiotherapy is fundamental in the rehabilitation of patients with dorsiflexion deficit and neuropathic pain, promoting functional gains and an improved quality of life.

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Biography of presenting author

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Keywords : Neuroma, Neuropathic pain, fisioterapia

EFFECTS OF SELF-MYOFASCIAL RELEASE ON DYNAMIC BALANCE AND NEUROMUSCULAR PERFORMANCE IN YOUNG SOCCER PLAYERS

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Abstract

INTRODUCTION: Lower limb injuries are prevalent in soccer players, requiring effective strategies for prevention and rehabilitation. Self-myofascial release (SMR) has been associated with improvements in muscle function and fascial mobility. The Y-Balance Test (YBT) and the Reactive Strength Index (RSI) assess, respectively, dynamic balance and neuromuscular efficiency. Therefore, SMR may represent a useful strategy to optimize performance and reduce injury risk in young athletes. OBJECTIVE: To evaluate the effects of SMR on the normalized, composite, and asymmetry scores of the YBT, as well as on RSI, jump height, flight time, contact time, and power assessed through the My Jump application in youth and junior football players during the 2023–2024 season. MATERIALS AND METHODS: Randomized clinical trial. A convenience sample of 64 male athletes aged 15–18 years was divided into a Control Group (CG) and an Experimental Group (EG). Athletes with no history of injury in the previous three months were included. Exclusion criteria comprised a history of lower limb surgery or fracture within the last five years, ongoing physiotherapy, or participation in another injury prevention program. SMR was performed bilaterally on the quadriceps, hamstrings, and gastrocnemius for two minutes per region, twice weekly, using a rigid foam roller, over a 16-week period. Assessments were conducted at baseline, immediately after the first intervention, and at 8 and 16 weeks. RESULTS: The EG showed significant improvements in the composite YBT score and in the normalized posterolateral and posteromedial reach distances ($p<0.05$) across assessment points, whereas the CG showed no changes. No differences were observed in asymmetry, and contradictory results were found in the normalized anterior reach measure. Variables obtained from the My Jump application remained stable, with no statistically significant differences.

CONCLUSION: SMR promoted gains in dynamic balance and functional stability, without a significant impact on explosive performance variables.

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Biography of presenting author

Sou Bruno Ferreira Rondon Linhares, fisioterapeuta formado pela Universidade Católica de Salvador (Brasil) e com 18 anos de experiência clínica. Atualmente, sou doutorando em Ciências da Reabilitação pela Universidade de Aveiro e possuo mestrado em Saúde da Família, com especializações em Fisioterapia Musculoesquelética, Ortopédica e Traumatológica. Minha formação inclui Manipulação Fascial (Método Stecco), Quiropraxia Clínica, Agulhamento Seco e Reeducação Postural Global (Souchard). Coordenei departamentos de fisioterapia em clubes esportivos portugueses e sou sócio da B2 Fisio Performance e Reabilitação, além de lecionar na Escola de Saúde do Instituto Piaget de Silves.

Keywords: self-myofascial release, motor control, young athletes

NEUROLOGICAL DISEASES

BLOOD-DERIVED EXTRACELLULAR VESICLES SIGNATURES AS BIOMARKER CANDIDATES FOR ALZHEIMER'S DISEASE: AN INTEGRATED PROTEOMIC AND METABOLIC APPROACH

Tânia Martins (Portugal)1; Alexandra Nunes (Portugal)2; Odete A.B. Da Cruz E Silva (Portugal)1; Ana Gabriela Henriques (Portugal)1

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Abstract

Alzheimer's disease (AD) is the most prevalent form of dementia worldwide, with prevalence expected to triple by 2050, imposing severe clinical and socioeconomic burdens. Current molecular diagnostics rely on cerebrospinal fluid measurements of Aβ, total-tau, and p-tau181 obtained via lumbar puncture, limiting their applicability for large-scale, routine screening. Blood-derived extracellular vesicles (EVs), whose cargo reflects both physiological and pathological states, can cross the blood–brain barrier and protect molecular content from degradation, making them ideal candidates for minimally invasive biomarker discovery. To address the gap for minimally invasive biomarkers, we employed three complementary strategies to identify EVs-based AD signatures:

1) In Silico analysis of EVs databases: EVs-dedicated repositories were mined to highlight proteins implicated in AD pathophysiology with potential value as biomarkers.

2) Proteome Profiling: EVs isolated from serum of AD patients and age-matched controls underwent mass spectrometry analysis. The obtained proteomes were statistically analyzed to identify biomarker candidates which were further validated using antibody-based methodologies.

3) Metabolic Profiling by Vibrational Spectroscopy: Fourier transform infrared spectroscopy was performed to define disease-associated metabolic alterations in EVs.

This integrated approach yielded a panel of Aβ-binding proteins and distinct spectroscopic profiles in EVs that can constitute novel biomarker candidates. The identified proteomic and metabolic profiles support the potential of blood-derived EVs as innovative liquid biopsy tools to assist in AD diagnosis. Future work will focus on validating these candidates in larger, longitudinal cohorts and assessing their utility for monitoring disease progression and/or therapeutic response.

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Biography of presenting author

Invited Assistant Professor at Medical Sciences Department and Junior Researcher at iBiMED, University of Aveiro, holds a PhD in Biomedicine, a MSc in Molecular Biomedicine, and a BSc in Biomedical Sciences. Her primary scientific interests include identifying biomarkers for Alzheimer's disease diagnosis, discovering novel therapeutic targets, and optimizing advanced methodologies for isolating and characterizing extracellular vesicles from various body fluids.

Keywords : Alzheimer's disease, extracellular vesicles, blood biomarkers

AMYLOID PRECURSOR PROTEIN AND ITS FRAGMENTS IN EXTRACELLULAR VESICLES

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Abstract

Alzheimer's disease (AD) is a devasting neurodegenerative disorder characterized by progressive neuronal loss and irreversible cognitive decline. AD main pathological hallmarks include the formation of intracellular neurofibrillary tangles and extracellular senile plaques, composed of the neurotoxic Aβ peptide, derived from proteolytic processing of amyloid precursor protein (APP). APP can be processed through two major pathways: amyloidogenic and non-amyloidogenic. In the amyloidogenic pathway, APP is sequentially cleaved by β-secretase, generating a soluble N-terminal fragment (sAPPβ) and a C-terminal fragment (CTFβ), which is subsequently processed by γ-secretase to produce Aβ and the APP intracellular domain (AICD). In the non-amyloidogenic pathway, α-secretase cleaves APP within Aβ domain, preventing Aβ formation and releasing a soluble N-terminal fragment (sAPPα) and a C-terminal fragment (CTFα), the latter is further cleaved by γ-secretase, yielding the small P3 fragment and AICD. Each fragment has been associated with distinct cellular functions and signalling roles.

In this work, APP and its proteolytic fragments were analyzed in a neuronal cell model and in secreted extracellular vesicles (EVs) using western blot. These nanosized vesicles, key mediators of intercellular communication, can transport APP fragments between cells, potentially contributing to disease propagation. Moreover, as EVs can cross the blood–brain barrier, they represent a promising and minimally invasive source of circulating biomarkers. Understanding APP processing within EVs may therefore provide novel insights into AD molecular mechanisms and support the development of EVs-based diagnostic strategies.

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This research was supported by iBiMED / Fundação para a Ciência e Tecnologia (FCT), by project reference UID 4501 - Instituto de Biomedicina – Aveiro.

Biography of presenting author

Invited Assistant Professor at Medical Sciences Department and Junior Researcher at iBiMED,

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Keywords : Alzheimer’s disease, amyloid precursor protein, extracellular vesicles

BIN1 IN ALZHEIMER'S DISEASE: A MOLECULAR LINK BETWEEN OXIDATIVE STRESS, METABOLISM, AND AMYLOIDOGENESIS

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1 - iBiMED; 2 - DCM

Abstract

Alzheimer's disease (AD) is the most prevalent form of dementia worldwide, characterized by progressive cognitive decline and profound socioeconomic impact. Genetic and molecular studies have identified Bridging Integrator 1 (BIN1) as the second most relevant risk locus for late-onset AD, yet its mechanistic role in disease pathogenesis remains elusive. Growing evidence suggests that BIN1 is implicated in endocytic trafficking, tau pathology, and mitochondrial homeostasis, processes that are central to AD progression.

In this study, we investigated the functional interplay between BIN1 and mitochondria, as well as its potential involvement in amyloid precursor protein (APP) metabolism. An in vitro model of AD was subjected to oxidative stress modulators, in physiological conditions and with upregulation of BIN1. To evaluate APP modulation, protein expression and localization were assessed by immunoblotting, immunocytochemistry, and live imaging, complemented with densitometric and colocalization analyses.

Our findings for the first time show that BIN1 partially colocalizes with mitochondria and that its distribution is modulated under Aβ exposure. While oxidative stress on its own did not significantly modify BIN1 levels, combined treatments with Aβ and antioxidants highlighted a possible interaction between metabolic status and BIN1 function. BIN1 upregulation altered the expression of endosomal regulators, suggesting a role in vesicular trafficking and APP-related pathways. Altogether, these results support the hypothesis that mitochondria are not merely passive targets of BIN1 dysregulation but are actively contributing to shaping its cellular functions.

This work extends previous observations on the BIN1 interactome and provides further evidence for a mitochondria–BIN1–APP regulatory axis. By linking mitochondrial dysfunction, altered endosomal dynamics, and amyloidogenic processing, our study reinforces BIN1 as a promising therapeutic target. Understanding these mechanisms may open new avenues for the development of strategies aimed at mitigating neuronal damage and slowing AD progression.

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Acknowledgements
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Biography of presenting author
I am a passionate and dedicated Biomedical Scientist with a background in Biomedical Engineering and currently finishing a Master’s in Molecular Biomedicine. My academic path has given me a multidisciplinary perspective on medical research. Throughout my studies, I have built strong foundations in programming, mathematics and physics, and biological sciences including cell biology, anatomy, histology, and biochemistry. My master's training has deepened my knowledge in molecular medicine, neuroscience, immunology, and genomics, and my thesis is on signal transduction in Alzheimer’s disease, focusing on APP processing. In the lab, I’m gaining hands-on experience in multiple molecular biology techniques.

Keywords : Oxidative Stress, APP modulation, Alzheimer’s Disease

TRNA MODIFICATION DYNAMICS INFLUENCE APP PROCESSING AND STRESS SIGNALLING IN ALZHEIMER'S DISEASE MODELS

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Abstract

The tRNA epitranscriptome plays a pivotal role in fine-tuning translation under both physiological and pathological conditions. In Alzheimer's disease (AD), a neurodegenerative disorder marked by β-amyloid accumulation, proteostasis disruption, and chronic activation of the integrated stress response (ISR), alterations in tRNA modifications are emerging as key modulators of disease progression.

Building on our previous findings that reduced expression of the tRNA modifying enzyme ELP3, and reduced levels of its catalyzed tRNA modifications exacerbates β-amyloid-induced stressa, we identified an additional tRNA modifying enzyme whose altered expression in AD models have a direct impact on proteostasis. Silencing this enzyme alleviated ISR activation, impaired the maturation of mutated APP (APP695) reducing the accumulation of toxic β-amyloid aggregation, and restored translation efficiency and proteostasis, underscoring the critical role of tRNA epitranscriptomic regulation in maintaining proteostasis and managing cellular stress in AD.

These findings are currently being validated in vivo using AD mouse models and patient-derived induced pluripotent stem cells (iPSCs). Taken together our data highlight the therapeutic potential of targeting the tRNA epitranscriptome through tRNA modifying enzyme expression modulation to correct abnormal APP processing and rebalance stress signaling pathways in AD.

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This work is funded by the grants CEECIND/00284/2018, AARG-NTF-23-1149641. The iBiMED research unit

is supported by FCT funds under 10.54499/UIDB/04501/2020 and 10.54499/UIDP/04501/2020.

Biography of presenting author

Ana Raquel Soares is a molecular biologist specializing in RNA biology and the tRNA epitranscriptome. She leads the tRNA Epitranscriptome and Disease group at iBiMED-UA, where her research uncovers how tRNA modifications and tRNA-derived fragments regulate translation, proteostasis, and disease mechanisms. Her work revealed tRNA mutation–driven proteostasis collapse, identified tRNA fragments as modulators of RNA interference, and now focuses on how disrupted tRNA epitranscriptomic pathways contribute to disease. Combining epitranscriptomics, transcriptomics, and proteomics, she is advancing understanding of RNA-based regulation in aged-related diseases.

Keywords : Alzheimer's disease, tRNA, epitranscriptome, integrated stress response

SPECTROSCOPIC CHARACTERIZATION OF METABOLOMIC CHANGES DURING RAT CORTICAL NEURONAL DIFFERENTIATION

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Abstract

Neuronal differentiation is a complex, highly regulated process through which initially spherical, unpolarized neurons develop distinct axons and dendrites, driven by coordinated cytoskeletal dynamics[1]. Primary neuronal cultures derived from rodent brains, particularly rats, provide reliable models for studying these processes due to their close similarity to human neuronal development[2]. To investigate the molecular mechanisms underlying neuronal differentiation, metabolomics has become a valuable tool for revealing biochemical and metabolic alterations[3]. Among analytical methods, Fourier Transform Infrared (FTIR) spectroscopy has emerged as a powerful technique for generating molecular fingerprints of biological samples[4].

In this study, we utilized FTIR spectroscopy to monitor molecular changes occurring during the differentiation of rat cortical neurons.

For FTIR analysis, primary cortical neurons isolated from rat embryos (Rattus norvegicus) were cultured for 14 days, and the cells were harvested every two days and stored at -80°C. Each experimental condition was analyzed using eight independent biological replicates, with three technical replicates per condition. The spectroscopic profiles were analyzed using Partial Least Squares Regression (PLS-R) in the 1800–1500cm^{-1} region, and peak intensities were calculated using second-derivative spectra, followed by statistical analysis.

PLS-R analysis of the 1800–1500 cm^{-1} region enabled the discrimination of spectroscopic profiles that characterize neurons with fewer DIVs from neurons with more DIVs. Peak intensities analysis revealed significant metabolomic alterations throughout differentiation, including proteome alterations (such as remodeling of protein secondary structures and elevated protein phosphorylation levels), and lipidome alterations (such as increased total lipid content, higher levels of lipid esters, longer acyl chains, and decreased unsaturation levels). These alterations may imply an activation of signaling pathways and a membrane expansion, both of which are essential for neuronal maturation. These results demonstrate that FTIR spectroscopy is a powerful analytical approach for uncovering the molecular events that shape neuronal differentiation and maturation[3].

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Biography of presenting author

Idália Duarte de Almeida earned a BSc in Clinical Physiology from Coimbra Health School (2016) and an MSc in Molecular Biomedicine from the University of Aveiro (2019). Her research focuses on neurodegenerative diseases and the use of ATR-FTIR spectroscopy to study lipid profiles and aging biomarkers. She coauthored an article in International Journal of Molecular Sciences and collaborated on several projects. Skilled in FTIR spectroscopy and multivariate analysis, she has trained students and contributed to multiple research groups. Since 2021, she has been pursuing a PhD in Biomedicine at the University of Aveiro.

Keywords : Neuronal Differentiation, Metabolome, FTIR

IDENTIFYING EARLY REGENERATION-ASSOCIATED GENES BY COMPARING TRANSCRIPTOMIC RESPONSES TO CENTRAL AND PERIPHERAL NERVE INJURY

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Abstract

Spinal cord injury (SCI) remains a devastating condition with no effective treatments, largely due to the limited regenerative capacity of neurons in the central nervous system (CNS). In contrast, peripheral nerve injury (PNI) triggers a strong regenerative response, providing a valuable model for uncovering molecular drivers of successful repair. To identify early genetic programs that distinguish regenerative from non-regenerative responses, we analyzed the transcriptomic profiles of rat motor and sensory neurons following SCI and PNI. Neurons were collected 24 hours post-injury using laser capture microdissection, and RNA sequencing was performed to assess gene expression changes. Differential expression analysis revealed distinct transcriptional signatures between the two injury paradigms, with regenerating neurons exhibiting broader and more dynamic gene regulation. Over 100 genes were uniquely regulated under regenerative conditions, suggesting their roles as early regeneration-associated genes (RAGs). These candidates include genes involved in neural development, signaling, and axon growth, as well as several novel factors not previously linked to regeneration. To prioritize genes with therapeutic potential, we functionally screened a subset of targets in a sensory neuron cell line and identified several essential for promoting neurite outgrowth. Together, these findings highlight key molecular differences in the injury responses of peripheral and central neurons and identify promising genetic targets for enhancing regeneration after SCI. Ongoing functional studies aim to validate these candidates and further explore their therapeutic relevance.

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Biography of presenting author
Bruna C. da Cruz is a PhD student in Biomedicine at the University of Aveiro (UA), funded by an FCT studentship (2023.03623.BD). Her research focuses on identifying novel neuroregenerative targets for spinal cord injury through transcriptomic, molecular, and functional analyses, in collaboration with partners in Portugal, Germany, and France. She holds a BSc in Biomedical Sciences, a MSc in Molecular Biomedicine and a Post-graduation in Clinical Bioinformatics from UA. Bruna has contributed to 3 peer-reviewed articles, 6 oral communications (3 international, 3 national), 8 poster presentations (4 international, 4 national) and to the organization of 5 scientific dissemination events.

Keywords : Spinal Cord Injury, Neuroregeneration, Peripheral Nerve Injury

DEVELOPMENT AND PHARMACODYNAMIC CHARACTERIZATION OF A NOVEL REGENERATIVE BIOMATERIAL FOR SPINAL CORD REGENERATION

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Abstract

Spinal cord injury (SCI) is a severe neurological condition that leads to permanent loss of function, primarily due to the limited capacity for axonal regeneration and the inhibitory environment formed by glial scarring. Existing therapeutic options remain largely ineffective in promoting neural repair or meaningful functional recovery [1].

This study focused on developing an implantable biomaterial capable of controlled drug release to stimulate targeted axonal regeneration and modulate the local injury microenvironment, including glial scar formation, at the lesion site.

Alginate and chitosan were selected as matrix materials for their excellent biocompatibility, biodegradability, and non-toxic properties. Zinc oxide nanoparticles were incorporated to exploit their anti-inflammatory and antioxidant effects, while a pro-regenerative drug was nano-encapsulated and integrated within the biomaterial to enhance axonal growth and functional restoration. Cross-linkers and plasticizers were added to improve performance.

Comprehensive physicochemical characterization confirmed suitable mechanical properties and cytocompatibility of the developed biomaterials. In vitro evaluations further demonstrated general biocompatibility, with zinc oxide nanoparticles confirming their selective cytotoxicity and drug-loaded chitosan nanoparticles exhibiting favorable responses in injury models, promoting neurite extension, reducing lesion size, and upregulating pro-regenerative protein expression. These outcomes underscore their potential role in the drug delivery platform.

In summary, this research introduces a novel regenerative drug delivery system that synergistically integrates biomaterial design with pharmacological modulation to improve tissue repair after SCI. This approach offers promising prospects for advancing therapeutic interventions aimed at restoring function following spinal cord injury.

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Biography of presenting author

Inês Martins is a PhD student in Biomedical Engineering at the University of Aveiro, focusing her research on drug delivery and biomaterial development. She holds an MSc in Biomedical Engineering with a dissertation on drug-loaded biomaterials for spinal cord regeneration and a BSc in the same field. Inês has received research fellowships in different fields, including projects on spinal cord injury at iBiMED. She has contributed to publications and patents, and has presented her work at several conferences. In addition, Inês is actively involved in organizing academic events and has a strong background in extracurricular activities.

Keywords : Spinal Cord Injury, Regeneration, Biomaterial

EXPLORING THE NEUROPHYSIOLOGICAL AND CLINICAL EFFECTS OF A VIRTUAL REALITY-BASED BRAIN-MACHINE INTERFACE REHABILITATION PROTOCOL IN SPINAL CORD INJURY

José Gabriel Figueiredo (Portugal)1; Carla Pais-Vieira (Portugal)4; Júlia Ramos (Portugal)1,2; Maria Ribeiro Da Cunha (Portugal)1,3; Sandra I Vieira (Portugal)1; Miguel Pais-Vieira (Portugal)1

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Abstract

Brain–machine interfaces (BMIs) are systems that allow the control of devices by decoding brain activity in real-time[1]. BMIs integrating virtual reality (VR) are gaining more relevance in spinal cord injury (SCI) neurorehabilitation, since their implementation has led to clinical improvements[2–4]. These are proposed to originate from reactivating target neuronal pathways[5]. However, the mechanisms underlying such improvements are still unclear. Therefore, this study aims to characterize the effects of a VR-based BMI protocol in SCI. A participant with chronic SCI (AIS A, T4) was followed for 35 VR-based BMI sessions. In each session, he was cued to rest or use motor imagery to move a virtual avatar in an immersive VR-environment integrating multimodal feedback (audiovisual and tactile). Sensory and motor scores were measured according to ISNSCI, as well as pain intensity and user experience. Neural data were recorded through electroencephalography (EEG). The clinical efficacy of this protocol is being tested in a second, ongoing study, with a sample size of 20 SCI patients. In the case study, the participant reported reduced pain levels, increased self-reported quality of life, and non-spastic lower limb movements appeared when he was engaged in the motor imagery task and was not stressed. Neural spectral power analysis revealed changes in signal power in multiple frequency bands, some correlated with variation in pain intensity. It also revealed changes in the delta/alpha bands ratio. Data from the larger population of SCI patients is being collected where neurophysiological and potential molecular markers of disease are being analysed. Results so far suggest that the sustained use of this VR-based BMI protocol in SCI patients leads to improvements in pain, quality of life and motor function. Ongoing work will help establish these findings and hopefully contribute to the development of BMI-based interventions in SCI and

their implementation in the clinical setting.

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Biography of presenting author

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Keywords: Brain-Machine Interface, Spinal Cord Injury, Rehabilitation

GUT MICROBIOTA-ASSOCIATED LANDSCAPES OF RECOVERY FOLLOWING A SPINAL CORD INJURY (THE SCIMBIONT LONGITUDINAL COHORT STUDY)

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Abstract

Introduction. Spinal cord injury (SCI) has been associated with dysbiosis, which may impact functional recovery. However, the progression of post-SCI dysbiosis during inpatient rehabilitation and its potential associations to specific bacterial taxa and recovery outcomes, remain understudied.

Methods. Longitudinal observational cohort study, which included 66 subacute traumatic SCI patients and 40 able-bodied controls. Assessments, blood, and stool samples were collected at admission, discharge, and one-year post-injury. Primary outcome: Spinal Cord Independence Measure (SCIM-IV); secondary outcomes: motor Functional Independence Measure (FIM), ISNCSCI motor score, and Neurogenic Bowel Dysfunction (NBD). Gut microbiota was analyzed via 16S rRNA sequencing, and 13 cytokines were measured in serum using LEGENDplex. Associations between microbiota, cytokines, and outcomes were assessed using regression and machine-learning models (Random Forest, DIABLO).

Results. SCI induced significant dysbiosis, with lower alpha diversity, higher beta diversity, and altered bacterial composition, including increased pro-inflammatory bacteria and reduced short-chain fatty acid (SCFA) producers. Dysbiosis improved during rehabilitation and continued to recover up to one-year post-injury; more severe patients showed more significant improvements. Lower baseline diversity and smaller recovery gains were linked to antibiotic and serotonergic use. Specific taxa and cytokine levels were associated with recovery outcomes. Higher recovery was linked to less severe injuries, earlier rehabilitation, lower antibiotic use, enrichment of Coprococcus catus and Lactobacillus salivarius and a less pro-inflammatory immune profile (e.g., lower IL-1β and MCP-1). Lower recovery was associated with later admission, higher antibiotic use, a pro-inflammatory profile, and taxa such as Parabacteroides and Anaerotruncus.

Conclusions. Specific bacterial taxa were linked to immune parameters and significant functional

improvements following SCI. While clinical data had stronger predictive power, microbiota profiles improved prediction accuracy. Identified taxa may serve as potential “neurobiotic” adjuvants to enhance rehabilitation outcomes and quality of life.

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Keywords : Spinal cord injury, Gut dysbiosis, gut microbiota-based recovery signatures

SERUM PROTEOMIC REMODELING FOLLOWING REHABILITATION IN SPINAL CORD INJURY PATIENTS AND ITS RELEVANCE TO NEURONAL RECOVERY

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Spinal cord injury (SCI) is an untreatable neuropathology impairing motor, sensory, and autonomic functions. The molecular impact of SCI rehabilitation was analyzed through proteomics of sera from 30 traumatic SCI patients (subacute phase), collected before and after rehabilitation, and 30 age-/sex-matched controls. To identify recovery-related pathways/proteins, proteomic data were correlated with recovery outcomes.

Before rehabilitation, 94 deregulated serum proteins distinguished SCI patients from controls. Proteins downregulated by SCI related to lipid metabolism and protein phosphorylation, while upregulated proteins associated with immune pathways. Motor complete injuries (AIS A/B) induced more pronounced proteomic changes than motor incomplete ones (AIS C/D).

Rehabilitation partially restored SCI-induced alterations, deregulating 76 proteins and bringing post-rehabilitation serum proteomes closer to controls. During rehabilitation, immune-related proteins were downregulated, while lipid metabolism proteins were upregulated. Notably, downregulated proteins showed negative correlations with recovery (lower protein levels linked to higher recovery),

whereas those upregulated showed positive correlations (higher protein levels linked to higher recovery).

Selected ‘beneficial’ and ‘detrimental’ post-rehabilitation sera, categorized by recovery outcomes and proteome evolution, were incubated on human induced pluripotent stem cell-derived neuronal

cultures. ‘Beneficial’ sera, from patients with better recovery and proteome shifts toward controls, promoted neuronal differentiation by decreasing SOX2 and increasing TUBB3 mRNA. Conversely, ‘detrimental’ sera, from patients with worse recovery and proteome shifts away from controls, delayed neuronal differentiation, and increased TP53 mRNA, suggesting apoptosis.
Our study suggests that rehabilitation partially normalizes SCI-induced serum proteome alterations, supporting neuronal differentiation and survival. Recovery-related pathways provide a foundation for targeted therapies to enhance SCI recovery.

The proteomic analysis was developed under the Project EPIC-XS-0000379. The work was supported by FCT - Fundação para a Ciência e Tecnologia, I.P., and the European Regional Development Fund (FEDER), via the programs Centro2020, Portugal2020, Centro2030, Portugal 2030 and COMPETE2030, through the doctoral scholarship 2020.06525.BD, and project Reconnect (COMPETE2030-FEDER-00891600). This work was supported by national funds from FCT for the project UID/04501/2025 (iBiMED-Institute of Biomedicine), https://doi.org/10.54499/UID/04501/2025.

Biography of presenting author
Bárbara M. de Sousa is a final-year Ph.D. candidate and Euro-BioImaging scientific ambassador with a background in Biomedical Sciences and Biochemistry. Her PhD combines longitudinal omics analyses of serum from spinal cord injury patients with iPSC-derived neuron studies to explore recovery mechanisms. Since 2017, she has collaborated on neuro- and osteoregeneration projects across Portugal, Spain, and Germany. She co-authored 12 peer-reviewed papers in journals like Brain, Advanced Healthcare Materials, and Neural Regeneration Research, delivered over 70 conference presentations, and received five scientific awards. Bárbara is now seeking postdoctoral opportunities abroad to advance neuroregeneration research in interdisciplinary settings.

Keywords : spinal cord injury, rehabilitation, serum proteomics

EFFECTS OF PREMOTOR MODULATION ON REACTION TIME

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Abstract

Introduction: Reaction Time (RT) plays a crucial role both in the daily functioning of healthy individuals and in multiple neurological disorders.[1] RT depends on several cerebral areas responsible for interpreting stimuli and coordinating the subsequent action–reaction process.[2] Among these regions, the premotor cortex constitutes a cortical area whose functions remain relatively underexplored in the context of non-invasive neuromodulation.

Methods: In the present study, we employed intermittent theta-burst transcranial magnetic stimulation (iTBS) to investigate, within the dominant hemisphere, the effects of premotor modulation on RT.[3] Each participant completed two assessments: the ruler drop test and the NASA Psychomotor Vigilance Test Plus (NASA PVT+).[4,5] Both tests were administered at two distinct time points (pre- and post-stimulation) for participants assigned either to the stimulation group or to the control group.

Results: Post-stimulation analyses revealed notable differences in NASA PVT+ performance. In the control group, the number of errors decreased and RT increased, both reaching statistical significance. Conversely, in the iTBS group, the number of errors decreased to a lesser extent, while RT decreased relative to the control group, although this change did not reach statistical significance.

Conclusion: These findings suggest that excitatory magnetic stimulation of the premotor cortex within the dominant hemisphere may influence motor planning processes associated with RT. This mechanism could have potential implications for the optimization of motor function in specific neurological conditions. However, further studies with larger samples are warranted to elucidate and validate this relationship.

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Biography of presenting author

Francisco Fonseca is a 6th-year student of the Integrated Master's Degree in Medicine at the Faculty of Health Sciences, University of Beira Interior. Originally from Covilhã and 23 years old, his academic path has been strongly marked by his involvement in student associations, volunteering, and research. He is currently conducting research on the study and modulation of motor function aimed at the recovery of neurological diseases.

Keywords : Reaction Time, Premotor Cortex, iTBS

CROSS-CULTURAL ADAPTATION AND PSYCHOMETRIC PROPERTIES OF THE COGNITIVE FAILURES QUESTIONNAIRE 2.0 (CFQ 2.0) FOR THE PORTUGUESE POPULATION

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Abstract

Introduction: Cognitive failures, defined as everyday subjective cognitive lapses, have been associated with adverse outcomes, including increased accident risk and reduced work capacity (1–3). The Cognitive Failures Questionnaire (CFQ) is a widely used self-report measure of subjective cognitive functioning (1,4). However, some items of the original CFQ have become less relevant in contemporary contexts, and stable multifactorial structures remain difficult to establish. To address these limitations, the CFQ 2.0 was recently developed as a refined 15-item instrument (1). The current study aimed to adapt the CFQ 2.0 into European Portuguese and to evaluate its psychometric properties in a community-based sample.

Methods: The initial procedure for test adaptation comprised expert review, cognitive debriefing interviews with the target population, and back-translation. A community sample of 309 adults (~71% women) aged 18-78 years (M =38.10; SD =14.89) completed the CFQ 2.0 and related measures (Prospective and Retrospective Memory Questionnaire [PRMQ], Multidimensional Fatigue Inventory-Short Form [MFI-SF]). Psychometric analysis examined evidence based on internal structure (internal consistency and factorial structure) and associations with other variables (memory failures, multidimensional fatigue).

Results: Exploratory factor analysis supported a unidimensional structure, accounting for 48.6% of the total variance. The CFQ 2.0 demonstrated excellent internal consistency (ω =0.90; α =0.90). The CFQ total score correlated positively with memory failures assessed by the PRMQ total score (r

=0.87, p = <.001) and the MFI-SF total fatigue score (r =0.63, p = <.001). A significant negative association was found with the MSFI-SF vigor subscale (r =-0.35, p = <.001).

Conclusions: The European Portuguese CFQ 2.0 demonstrated strong psychometric properties, supporting its reliability and validity as a measure of subjective everyday cognitive failures. This study provides evidence for shorter, psychometrically valid and reliable CFQ versions that minimize response burden while maintaining ecological validity, thus reinforcing its applicability in both research and clinical settings.

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Biography of presenting author

Sofia Fontoura Dias is a PhD Research Fellow in Psychology at the University of Aveiro and a Member of the Portuguese Psychologists Association. Sofia holds a BSc degree in Psychology and her MSc in Health Psychology and Neuropsychological Rehabilitation from the same institution. As a doctoral researcher (2024.01494.BD), she is investigating the dynamic aspects of sleep quality and daytime functioning, particularly cognitive performance and emotion regulation. Her work further examines the potential effects of combining cognitive training with neuromodulation techniques in insomnia. Her research interests include (Neuro)psychology and Sleep Medicine. She is a member of the European Sleep Research Society.

Keywords : Cognitive Failures Questionnaire 2.0, psychometric properties, European Portuguese version

RELIABILITY AND VALIDITY OF A DIGITAL SOLUTION FOR COGNITIVE ASSESSMENT IN THE GENERAL POPULATION

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Abstract

Cognitive screening is necessary for identifying and monitoring cognitive decline [1]. Neuropsychological evaluations and traditional paper-and-pencil, low-cost tools for cognitive screening, administered by trained professionals, are impractical for large-scale screening and continuous follow-up [1-3]. Digital solutions, designed for cognitive screening, have emerged as promising tools, suitable for large-scale and long-term cognitive assessment [1,3,4]. These instruments, like any measurement instrument, should demonstrate adequate reliability and validity. The Brain on Track® (BoT) is a self-administered, web-based test developed for longitudinal cognitive assessment [3].

This study examined the reliability and validity of the digital solution BoT in the general population.

Participants (n = 306) from a subsample of a population-based cohort were included in this study, specifically those without evidence of cognitive impairment. At the baseline, sociodemographic data were collected, and the Montreal Cognitive Assessment (MoCA) and BoT test were performed. The BoT was administered at two points (baseline and retest). Internal consistency, test-retest reliability, criterion validity, and structural validity were evaluated.

In a general population sample, the BoT revealed good internal consistency (Cronbach's α = 0.82), high test-retest reliability (ICC = 0.91), and a moderate positive correlation with MoCA total scores (r = 0.40). Regarding structural validity, the results support a unidimensional structure of the BoT test.

The measurement properties demonstrated by the BoT, namely good internal consistency and test-retest reliability, highlight this digital solution's potential as a tool for cognitive assessment in the general population, with properties comparable to traditional paper-and-pencil tests. Regarding criterion validity, this study relies only on comparison with the MoCA test, and further comparison of

the BoT with the gold standard neuropsychological evaluations is warranted. Although the results are promising, further research is needed to evaluate how the BoT performs in clinical populations, to investigate its longitudinal performance, and its potential to monitor cognitive changes over time.

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Biography of presenting author

Marisa Magno completed her Master's degree in Medical Statistics at the University of Aveiro, Department of Medical Sciences and Department of Mathematics. She graduated in Health Psychology at the University of Porto. Marisa has attended specialized training in cognitive assessment, neuropsychological rehabilitation, and applied statistics. Her research interests are in Medical and Health Sciences with an emphasis on cognitive health, the use of digital solutions to assess, monitor, and manage cognitive impairment, psychometrics, and statistics applied to health research. She is currently a PhD research fellow in the Doctoral Program in Rehabilitation Sciences at the University of Aveiro.

Keywords : validity, reliability, digital cognitive assessment

CANCOG® - COGNITIVE REHABILITATION IN CANCER: PRELIMINARY EVIDENCE OF FEASIBILITY AND ACCEPTABILITY

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Abstract

Background: Cancer-related cognitive impairment is a frequent concern among non-central nervous system (non-CNS) cancer survivors, compromising daily functioning and quality of life [1]. Cognitive rehabilitation has emerged as a promising approach to mitigate these difficulties [2,3]. In Portugal, the CanCOG® - Cognitive Rehabilitation in Cancer program was translated and culturally adapted for non-CNS cancer survivors [4]. This study reports the preliminary feasibility and acceptability data regarding the first implementation of this intervention.

Methods: This single-arm, pre–post feasibility study was conducted among non-CNS cancer survivors who participated in a physical rehabilitation program. Participants completed six weekly 90-minute face-to-face sessions combining psychoeducation, cognitive training, and compensatory techniques. A neuropsychological assessment was conducted at baseline, post-intervention, and at six-month follow-up. Subjective and objective cognitive functioning, emotional well-being,and quality of lifewere evaluated. Feasibility indicators (recruitment, adherence, retention) and qualitative feedback on acceptability and satisfaction were also collected.

Results: Of the 40 survivors screened, 24 were assessed for eligibility (screening rate = 60%), and 17 met inclusion criteria (eligibility rate = 43%). Five participants (Mage = 58 years; 29% consent rate) enrolled in the intervention. Retention and assessment completion rates were 100%. Regarding the adherence, two participants (40%) attended all six sessions, and three (60%) attended five.

Qualitative feedback indicated high acceptability and satisfaction. Participants valued the group format, reported learning useful cognitive strategies, and felt their post-cancer cognitive difficulties

were validated. Reported challenges were minor (e.g., workload, goal setting), and suggestions emphasized the integration with other survivorship programs and earlier implementation.

Conclusion: This study demonstrated that the CanCOG® program is both feasible and acceptable for Portuguese cancer survivors. Strong retention and adherence, together with participants' positive qualitative feedback, suggest that the intervention is practical and meaningful in survivorship care. A larger randomized controlled trial is being conducted to assess its efficacy and long-term benefits.

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Biography of presenting author

Sofia A. Marques-Fernandes is a clinical psychologist and Ph.D. student at the University of Aveiro. Her current research focuses on cancer-related cognitive impairment in Portuguese non-central nervous system cancer survivors. Her PhD research project, "CanCOG – Cognitive Rehabilitation in Cancer: Study of the Acceptability, Feasibility, and Efficacy of the Face-to-Face Program Format for Portuguese Cancer Survivors," is funded by the Foundation for Science and Technology, reference number 2023.03752.BD. Sofia's other research interests include fear of cancer recurrence and post-traumatic growth in pediatric and adult cancer survivors.

Keywords : Cancer-related cognitive impairment, Cancer survivorship, Cognitive Rehabilitation

WHAT DO WE DO? EXPLORING BOBATH AND NON-BOBATH PRACTICES IN NEUROLOGICAL PHYSIOTHERAPY - PRELIMINARY FINDINGS

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1 - Rise@Health; 2 - University of Toronto; 3 - Ibimed

Abstract

Background: Physiotherapy is essential in post-stroke rehabilitation, yet limited evidence describes what physiotherapists actually do in clinical practice(1). This lack of specificity contributes to the gap between research and person-cantered care(2).

Purpose: To analyse therapeutic interventions applied by neurological physiotherapists with and without Bobath education, using the Rehabilitation Treatment Specification System (RTSS) framework.

Methods: Thirty-two experienced physiotherapists from hospitals, clinics and rehabilitation centers participated in this qualitative descriptive study. Each therapist's session was video-recorded and followed by semi-structured interviews using stimulated recall. Intervention actions were coded from video footage, session notes, and interview transcripts, and classified according to the RTSS framework into treatment targets, active ingredients, and treatment components (Organ Function, Skills and Habits, or Representations).

Results: Bobath group (BG) therapists demonstrated a broader distribution of intervention types across RTSS categories: Organ Function (30%), Skills and Habits (44%), and Representations (17%), whereas non-Bobath group (NBG) primarily focused on Skills and Habits (60%), with lower emphasis on Organ Function (14%) and Representations (7%). BG therapists focused on postural control, sensorimotor integration, and selective movement through manual facilitation. NBG therapists prioritized functional strengthening, task-specific training, and independence.

A total of 2507 therapeutic actions were categorized: BG used more manual facilitation, whereas NBG showed greater verbal cueing and exercise. Therapist-patient interaction and postural engagement also varied: BG therapists applied more therapeutic touch (65,4%) and used sitting and standing postures more frequently (704 and 172 entries, respectively), while NBG therapists relied more on hands-off strategies (44,3%) and spent more time in lying postures (277 entries). Non-treatment periods accounted for 11% (BG) and 16% (NBG) of observed actions.

Conclusion: The RTSS framework provided a detailed, structured lens to examine clinical neurorehabilitation. Bobath and non-Bobath therapists differ in clinical reasoning, treatment targets,

and interaction strategies. These findings improve clarity, replicability, and practical application in neurological physiotherapy.

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Biography of presenting author

The author is a neurological physiotherapist with over 15 years of clinical experience and a recipient of a doctoral grant from the Fundação para a Ciência e Tecnologia (FCT), reference 2022.1xxxx.BD. With a decade of specialized practice in acute stroke rehabilitation at the Hospital Center of Tondela-Viseu (CHTViseu), the author has developed extensive expertise in neurorehabilitation. In addition to clinical work, the author contributes to academic training, collaborating with the Physiotherapy Bachelor's program at the School of Health Sciences, University of Aveiro, as well as with both the Bachelor's and Master's programs in Physiotherapy at the Coimbra Health Science School.

Keywords : Bobath concept, stroke, RTSS framework

BRIDGING EXPERIENCE AND INNOVATION: A COLLABORATIVE APPROACH FOR DEVELOPING POST-STROKE REHABILITATION FOOTWEAR

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Introduction

Stroke is the major cause of disability worldwide, often resulting in sensorimotor impairments that compromise balance and mobility. The foot plays a critical role in postural control and gait, yet it is frequently affected after stroke. Targeted footwear solutions may therefore enhance functional recovery and support mobility in post-stroke individuals. This study explored the impact of a multidisciplinary workshop that brought together stroke survivors, healthcare professionals, engineers, and footwear industry experts to inform the development of technology-integrated rehabilitation footwear.

Methods

A qualitative design was adopted for the “Stroke Experience: Training for the Development of Technological Footwear” workshop, with 14 participants (7 stroke survivors). The session combined experiential learning, participatory reflection, and a collaborative discussion on footwear features. Data collection included semantic mapping of meeting records using VOSviewer and post-workshop questionnaires analyzed thematically.

Results

Semantic mapping and qualitative analysis demonstrated precise alignment between survivors' lived experiences and professionals’ design insights. Survivors emphasized the need for adaptable,

lightweight footwear with adjustable fastening systems (e.g., BOA Fit system or Velcro), warmth, stability, and flexible materials to accommodate post-stroke asymmetries and swelling. The technical team reported increased empathy and awareness of user diversity, integrating feedback into prototype requirements. VOSviewer analysis identified clusters of key concepts, such as “sapato” (shoe), “conforto” (comfort), “segurança” (safety), “frio” (cold), “dobrar” (flex), and “calçado maior” (wider shoe), highlighting the predominance of comfort- and safety-related themes in participants’ discourse.

Conclusion

The workshop demonstrated that collaborative practices provide a robust framework for bridging clinical, technical, and experiential knowledge, reflecting both the lived challenges and preferred design features of stroke survivors. The integration of semantic and perceptual data suggested that collaborative exchanges foster empathy, innovation, and user-centered priorities in assistive footwear design. This approach offers valuable insights for developing inclusive, functional, and meaningful rehabilitation technologies for stroke survivors.

Acknowlegments

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Biography of presenting author

Ana Rita Pinheiro is a physiotherapist with a PhD in Biomedical Sciences and a postgraduate degree in Neurosciences. She is an Assistant Professor at the School of Health Sciences of University of Aveiro, a researcher at iBiMED, and vice-director of the Physiotherapy degree. She collaborates with the Polytechnic of Porto and the Neurology Working Group of the Portuguese Physiotherapists’ Association. With over 10 years of clinical experience, she teaches and supervises at undergraduate to doctoral levels, promoting innovative practices such as standardized patient-simulation. She has authored several scientific publications and collaborates with the international Angels initiative on stroke team training.

Keywords : Neurorehabilitation, Health technologies, Life after stroke

INFECTION AND RESISTANCE

REAL-WORLD ANTIMICROBIAL PERFORMANCE AND DURABILITY OF SHELLTY® TECHNICAL BED SHEETS

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Abstract

Population aging in Portugal has accelerated in recent decades: more than 2.5 million people are now 65 years or older, including over 3000 centenarians, out of a total population of 10.4 million.[1] This demographic shift has driven a significant increase in institutionalization, with an estimated 78000 older adults living in nursing homes and 76000 receiving home-care services.[2] Many have limited mobility or are bedridden, and changing bed linens is among the most physically and logistically demanding caregiving tasks. Frequent linen changes in long-term-care facilities consume resources, increase caregiver workload, and heighten cross-contamination risk.[3]

The Shellty® sheets[4] are medical device class I engineered from 100% polyester interlock knit and finished with durable hydrophobic, antiviral, and antibacterial treatments, forming a breathable yet waterproof barrier intended to reduce change frequency while guaranteeing patient safety. This study sets out to demonstrate the product's microbiological efficacy and functional durability under real-world clinical use and laundering.

Thirteen Shellty® sheets were prospectively monitored in two Portuguese long-term care facilities. Multiple swab samples were collected from each sheet after up to 290 hours of patient contact and several industrial wash cycles. Samples were tested for total mesophilic count, Enterobacteriaceae, Escherichia coli, Staphylococcus aureus, and Klebsiella pneumoniae using ISO methods. Hydrophobicity, tear strength, and resistance to wet bacterial penetration were assessed according to EN 13795 and ISO 2261 standards.

All target pathogens remained below the detection limit (<1 $CFUcm^{-2}$). Total mesophiles peaked at 57 $CFUcm^{-2}$, well under accepted hygiene thresholds. No degradation of the water barrier, antibacterial finish, or mechanical strength was observed; sheets still met EN 13795 "high-performance" requirements after several standardized wash cycles. Shellty® therefore maintains antimicrobial protection and structural integrity during prolonged use and laundering. Broad adoption

could reduce linen changes, cut water-energy consumption, and lighten caregiver workload while helping to prevent healthcare-associated infections.

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Biography of presenting author

Founder and CEO of a Portuguese healthtech focused on innovative hospital-care solutions. With a bachelor's in Nursing and a postgraduate degree in Health Management and Leadership, she leads the development of solutions that improve hygiene and infection control in clinical settings. She has driven the company's international growth, building partnerships across multiple regions, and oversees EU-funded R&D initiatives. The company holds recognized R&D certification and social-innovation status. She is an active voice on health innovation, female leadership, and global entrepreneurship.

Keywords : Shellty® sheet, Technical textiles for healthcare settings, Textiles with antimicrobial properties

RISK OF INFECTION ASSOCIATED WITH CENTRAL VENOUS CATHETERS AND HEMODIALYSIS CATHETERS IN PEOPLE IN CRITICAL ILL PATIENT: SCOPING REVIEW

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Abstract

Introduction: Intensive care units present a high prevalence of healthcare-associated infections. The use of care bundles helps identify critical points in treatment, reinforcing best practices and preventing errors.

Objectives: This review aims to map scientific evidence on the risk of infection linked to central venous and hemodialysis catheters in critically ill patients.

Materials and Methods: A scoping review was conducted using the PCC (Population, Concept, Context) framework. The search took place in October 2024 across MEDLINE Complete and CINHAL Complete databases. The guiding question was: “What is the scientific evidence on the risk of infection associated with central venous catheters and hemodialysis catheters in critically ill individuals?” MeSH descriptors included “Intensive Care Unit”, “ICU”, “Critical Care”, “Infection Control”, “Infection Prevention”, “Hemodialysis”, “Haemodialysis”, “Dialysis”, “Central Venous Catheters” and “Vascular Access Devices”, combined using Boolean operators “AND” and “OR”. Only full-text articles in Portuguese, Spanish, or English were selected. No time or geographic restrictions were applied.

Results: The literature highlights catheter-related infections as a growing concern, increasing morbidity, mortality, and healthcare costs. Studies confirm that implementing bundles reduces infection rates and associated expenses. These strategies aim to prevent complications from intravascular devices, promoting patient safety and resource efficiency.

Conclusions: The review reveals that bloodstream infections from central venous catheters remain a significant issue in intensive care units. They contribute to longer hospital stays, higher healthcare costs, and increased patient suffering, morbidity, and mortality.

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Biography of presenting author

I am a nurse specialized in hemodialysis with around 10 years of experience, focused on delivering safe and compassionate care to patients with chronic kidney disease. I hold a Master’s degree in Nursing, with a specialization in medical-surgical care for critically ill patients. Currently, I’m pursuing a postgraduate degree in Health Management to expand my leadership and strategic planning skills. I’m passionate about evidence-based practice, teamwork, and continuous learning, and I’m always seeking new challenges that allow me to grow professionally and contribute meaningfully to healthcare improvement.

Keywords : Central venous catheters, Catheter-related infection

PREDISPOSING FACTORS FOR INTUBATION-ASSOCIATED PNEUMONIA IN CRITICAL PATIENTS ADMITTED TO INTENSIVE CARE UNIT

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1 - Serviço de Medicina Intensiva da Unidade Local de Saúde de Coimbra; 2 - Universidade de Aveiro - Escola Superior de Saúde e iBiMed.

Abstract

Introduction: Intensive Care Units (ICU) present the highest prevalence of Healthcare-Associated Infections (European Centre for Disease Prevention and Control, 2024), with Intubation-Associated Pneumonia (IAP) being the most frequent (Watson et al., 2018). Several risk factors are associated to its development (Matos & Graça, 2024). IAP increases morbidity, mortality, duration of Invasive Mechanical Ventilation (IMV), length of hospital stay, and healthcare costs (Watson et al., 2018; Li et al., 2024). However, it is a potentially preventable complication (Direção-Geral da Saúde, 2022), in which nurses play a key role in prevention and control (Correia et al., 2023).

Objective: To identify predisposing factors for the development of IAP in patients admitted to an ICU of a Local Health Unit in the Central Region of Portugal.

Methods: A quantitative, prospective, observational, and longitudinal study of a descriptive and correlational nature was conducted between January 20 and August 14, 2025. A non-probabilistic convenience sample included patients who: (1) were aged ≥ 18 years; and (2) had an artificial airway for more than 48 hours or had been extubated/decannulated for less than 48 hours. Independent variables (sociodemographic, anthropometric, and clinical characteristics) and one dependent variable (development of IAP) were defined. Data analysis was performed using univariate logistic regression.

Results: A total of 103 participants were included; 40.8% developed IAP. Predisposing factors for IAP development included trauma and neurocritical diagnoses, presence of a chest drain, endotracheal reintubation, duration of IMV, and length of ICU stay.

Conclusions: IAP is a multifactorial and preventable complication. Its incidence can be reduced through the implementation of evidence-based protocols, continuous training, and epidemiological surveillance. The specialist nurse in Medical-Surgical Nursing in the area of Critical Care plays a central role in promoting patient safety and providing care aimed at achieving better health outcomes.

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Biography of presenting author

Enfermeira no Serviço de Medicina Intensiva da Unidade Local de Saúde de Coimbra desde agosto de 2019. Experiência anterior: julho de 2015 a fevereiro de 2016 na Unidade de Cuidados Continuados de Longa Duração e Manutenção de Algoz; fevereiro de 2016 a junho de 2019 no Serviço de Internamento do Hospital de São Camilo de Portimão; julho de 2019 no Serviço de Puerpério do Hospital de Portimão.

Licenciada em Enfermagem pela Escola Superior de Enfermagem de Coimbra (2012). Mestranda em Enfermagem Médico-Cirúrgica na Área de Enfermagem à Pessoa em Situação Crítica na Escola Superior de Saúde da Universidade de Aveiro.

Keywords : Specialist Nurse, Critical Care, Intubation-Associated Pneumonia

PHLEBITIS IN PATIENTS WITH ACUTE EXACERBATION OF CHRONIC DISEASE UNDER HOME HOSPITALIZATION: INCIDENCE AND ASSOCIATED FACTORS

Dina Silva (Portugal)1; João Lindo Simões (Portugal)1

1 - ESSUA

Abstract

Home hospitalization (HH) is an alternative to conventional hospitalization, offering continuous clinical care to patients who, despite requiring hospital admission, can remain at home under supervision (1). With an aging population and an increase in chronic diseases and pressure on hospitals make HH a response to this need (2,3). Peripheral Venous Catheterization (PVC), widely used for intravenous therapy, presents risks, with phlebitis being a frequent complication, causing discomfort, treatment interruption and increased costs (4). Although there is scientific evidence on phlebitis in hospitalized patients, in Portugal, studies on its prevalence associated with PVC are scarce, particularly in the HH context, justifying the relevance of this study. This quantitative, prospective, longitudinal, and descriptive-correlational study aimed to assess the incidence and factors associated with phlebitis in patients with acute chronic disease under HH, generating evidence to optimize prevention and management of this complication in clinical
practice. It was conducted in a HH unit in the Central Region between October 2024 and February 2025. The convenience sample included HH patients with PVC, with data collected by the researcher and nurses through a home-administered questionnaire. Results showed a strong association between length of stay and phlebitis occurrence (OR =
1.43; 95% CI [1.20–1.71]; $p < 0.001$), as well as between the number of days with PVC (OR = 1.61; 95% CI [1.30–2.00]; $p < 0.001$), indicating that prolonged stay increases complication risk.
An inverse association was found between antiplatelet/anticoagulant therapy and phlebitis (OR = 0.39; 95% CI [0.16–0.92]; $p = 0.032$), suggesting a protective effect. The use of protective netting and compression stockings (OR = 0.31; 95% CI [0.10–0.96]; $p = 0.043$) was also linked to lower risk. These results highlight the importance of standardized care, continuous monitoring, and a systematic, evidence-based approach using validated phlebitis scales and preventive strategies.

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Biography of presenting author
Dina Silva is a nurse at the ULSRA Home Hospitalization Unit. She holds a degree in Nursing from the University of Évora (2007), a postgraduate degree in Urgent and Emergency Care (ESEnfC, 2009), and a specialization in Occupational Nursing (ESSUA, 2017). She is currently studying for a Master's Degree in Medical-Surgical Nursing, in the area of People with Chronic Conditions, at ESSUA (2023-2025). Her work focuses on providing quality care in the context of UHD and promoting patient safety, integrating scientific research in the academic field into the continuous improvement of nursing practices.

Keywords : Phlebitis, Peripheral Venous Catheterization, Home Hospitalization

ASPIRATION PNEUMONIA IN STROKE PATIENTS: A 5-YEAR RETROSPECTIVE STUDY

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1 - Escola Superior de Saúde da Universidade de Aveiro; 2 - Unidade Local de Saúde de Aveiro

Abstract

Stroke is characterized by the reduction of blood supply to the brain, often resulting in irreversible brain damage (Pereira, 2021). Góis and Ferreira (2018) report that stroke is the main neurological cause of dysphagia, affecting a considerable proportion of patients within the first days of hospitalization (Ko et al., 2021). If not properly identified, it increases the risk of developing aspiration pneumonia (Ferreira et al., 2018). Accordingly, a five-year retrospective study was conducted in a Stroke Unit of a hospital, located in the Central Region of Portugal, aiming to perform a sociodemographic and clinical characterization and to identify predictive factors for aspiration pneumonia in stroke patients. A total sample of 1497 patients diagnosed with stroke was analysed. The sample is constituted mainly by male patients an a mean age of 71 years. The most frequent type of stroke identified was ischemic stroke. Within the total sample, 9.49 % of patients developed aspiration pneumonia, and swallowing disorders were identified in 81.69 % of the patients who developed aspiration pneumonia.

In order to identify the predictors of aspiration pneumonia, a multivariate logistic regression model was employed. It was found that age, male sex, hemorrhagic or both types of stroke, presence of nasogastric tube and swallowing impairment are predictive factors for the development of aspiration pneumonia.

Ultimately this study provides evidence to support the implementation of preventive measures aimed at reducing respiratory complications, thereby promoting optimal patient care.

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Biography of presenting author

Inês Matos has been a nurse since 2016. She completed her degree in Nursing and a postgraduate course in Wound Prevention and Treatment at the S. Francisco das Misericórdias School of Nursing. Between 2016 and 2019, she worked at the Egas Moniz Hospital in Lisbon. Since 2019, she has been working at the Aveiro Local Health Unit - Infante D. Pedro Hospital in the Medical Specialities Service, which includes the Stroke Unit. In 2025, completed a Master's Degree in Medical-Surgical Nursing in the area of Nursing for People in Critical Conditions at the School of Health Sciences of University of Aveiro.

Keywords : Stroke, Aspiration Pneumonia, Nursing Care

TARGETING PEROXISOMES FOR HOST-DIRECTED BROAD-SPECTRUM ANTIVIRAL STRATEGIES

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1 - Institute of Biomedicine (iBiMED), Department of Medical Sciences, University of Aveiro, Aveiro, Portugal

Abstract

Viral infections are the leading cause of epidemic and pandemic diseases. Current antiviral therapeutics, aimed at specific viruses/strains, often succumb to mutations and fall short against emerging hazards. Therefore, there is an urgent need for broad-spectrum strategies that target host cell mechanisms common to different viruses. Important targets fulfilling these criteria are host cell organelles, particularly peroxisomes, recently recognized as key regulators in both pro- and antiviral processes [1]. This presentation focuses on the mechanisms by which peroxisomes shape antiviral immune signalling and affect influenza A virus (IAV) infection. Our research shows that the swift peroxisome-dependent response is driven by the rapid oligomerization of MAVS at peroxisomal membranes, significantly faster than at mitochondria. Moreover, variations in peroxisome morphology, number, and distribution, along with the interaction with the endoplasmic reticulum, profoundly influence the immune response and IAV life-cycle. These data will be discussed to explore how strategic manipulation of peroxisomal functions holds promise for regulating immune responses and enabling effective antiviral interventions.

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Jéssica Sarabando is a PhD student at the Virus Host-Cell Interactions Laboratory, Institute of Biomedicine (iBiMED), University of Aveiro.

Keywords : peroxisomes, viruses, antiviral signaling

PREVENTION OF SEXUALLY TRANSMITTED INFECTIONS: KNOWLEDGE, ATTITUDES, AND PRACTICES REGARDING CONDOM USE AMONG PORTUGUESE ADOLESCENTS

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Introduction

Sexually transmitted infections (STIs) have shown a significant increase across Europe and in Portugal (1,2), with a particularly marked impact among young people. In the Local Health Unit of the Aveiro Region, STIs represented the most frequently reported group of infections in 2024. Adolescence is a critical developmental stage, often associated with risky sexual behaviours and limited use of protective methods (3,4). Although sexual health is addressed in school programs and during medical consultations (5,6), the effectiveness of educational strategies remains insufficient. Meanwhile, social media has become the primary source of information for adolescents, despite the lack of scientific validation and regulatory oversight (7). This project proposes an intervention based on the Challenge Based Learning (CBL) methodology (8), aiming to actively engage young people and improve sexual health literacy.

Objectives

The general objectives include: enhance knowledge about STIs; reduce stigma associated with these infections; promote consistent condom use; evaluate how sexual health is addressed in schools; disseminate information about community resources; and analyse STI-related content on Instagram.

Methods

This quasi-experimental study is based on a CBL intervention and structured around pre- and post-intervention questionnaires (one assessing knowledge about sexuality and another evaluating stigma and shame related to STIs). The project comprises two phases: a pilot phase (implemented in one school in Aveiro) and a broader implementation phase (involving four schools). All students from the 9th to the 12th grades will be invited to complete the questionnaires, while selected 9th and 12th grade classes will participate directly in the CBL intervention. The intervention will include

awareness activities led by healthcare professionals and student-led projects developed with the support of mentors.

Discussion and Conclusion

This project is expected to strengthen sexual health literacy, encourage the adoption of preventive behaviours, and empower adolescents to act as agents of change within their communities.

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Biography of presenting author

I studied at the Faculty of Medicine of the University of Coimbra. I have been a resident doctor in General Practice at the Local Health Unit of the Aveiro Region since 2024. I also have experience as a trainer in a project dedicated to sexual health education for 11th-grade students in Aveiro schools.

Keywords: Sexually transmitted infections, Adolescence

BRI2 EXPRESSION, PROCESSING AND FUNCTION DURING NEURONAL DIFFERENTIATION

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Abstract

Neuronal damage in the central nervous system is typically permanent, as endogenous repair mechanisms cannot restore lost neuronal structure or function. Since current treatments offer only limited benefits, there is an urgent need for new strategies that promote neuronal differentiation and prevent neurodegeneration [1]. In recent years, gene-based strategies have emerged as promising pro-neurogenic interventions. BRI2, is a protein highly expressed in the brain that is processed into distinct proteolytic fragments. Although its physiological role remains unclear, its subcellular distribution in dendrites, axons and cell bodies supports the hypothesis that this protein is crucial for neuronal function [2].

To explore the role of BRI2 in neuronal differentiation, its expression, processing and localization was analysed during the in vitro differentiation of SH-SY5Y cells and primary neuronal cultures, through immunocytochemistry and western blotting. BRI2 expression was also monitored throughout hippocampal development in C57BL/6 mice. To functionally assess BRI2 involvement in neuronal differentiation, a CRISPR-Cas9 BRI2 knockout SH-SY5Y cell line was generated to assess its impact on neuronal morphology and differentiation, which was assessed with immunofluorescence, morphometric analysis, and expression of neuronal markers (βIII-tubulin, MAP2).

Our results show that BRI2 expression and processing increase during SH-SY5Y differentiation, and that BRI2 is developmentally regulated in cortical primary neurons, with maximal expression at early neurodevelopmental stages. Similarly, in vivo BRI2 expression rises during early postnatal hippocampal formation and declines after postnatal day 14 (P14), coinciding with neuronal maturation in mice. Notably, BRI2 KO cells display marked molecular and morphological alterations, including impaired neurite outgrowth and altered neuronal differentiation.

Our findings identify BRI2 as a key regulator of neuronal differentiation. Further studies will be essential to elucidate the underlying mechanisms and evaluate the potential of BRI2 as a therapeutic target in disorders of the central nervous system.

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Mariana Vassal holds a BSc in Bioengineering from the University of Beira Interior and an MSc in Molecular and Cell Biology from the University of Aveiro. Before starting her position as a researcher with a PhD scholarship at the Institute of Biomedicine (iBiMED) of the University of Aveiro, she was a research fellow on the FCT-funded project "BRI2 role in neuronal differentiation and the underlying molecular mechanisms: towards an innovative regenerative therapy for Alzheimer's Disease". She now continues this research through her PhD in collaboration with Dr Simone Tambaro (Karolinska Institutet), focusing on understanding BRI2’s role in neuronal differentiation.

Keywords : neuronal differentiation, bri2, knockout

THE MIME STUDY: SEARCHING FOR MICROBIOME-METABOLOME BIOMARKERS OF BREAST CANCER RESPONSE TO NEOADJUVANT THERAPY

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Abstract

Neoadjuvant therapy (NAT) is a standard treatment for patients with locally advanced breast cancer (BC) and selected molecular subtypes. Achieving a pathological complete response (pCR)—the absence of residual invasive cancer in the breast and lymph nodes—is a key surrogate marker associated with improved disease-free and overall survival. However, some patients do not achieve pCR following NAT, which can be associated with treatment resistance and poorer outcomes. In addition, NAT can cause significant side effects that negatively affect patients' quality of life and compromise treatment efficacy. Emerging evidence suggests that the gut microbiome can modulate systemic immunity, drug metabolism, and inflammation, thereby influencing both tumor progression and therapeutic outcomes.

The MIME study is a multicenter investigation aimed at identifying microbiome–metabolome signatures that can predict pCR and adverse effects in BC patients undergoing NAT. Participants are being recruited across three national hospitals since February 2025. Blood plasma, urine and fecal samples collected from these patients are transferred to the University of Aveiro for gut microbiota profiling by 16S rRNA gene sequencing and metabolomic analyses using liquid chromatography–mass spectrometry (LC–MS). In parallel, in vitro assays are being performed to evaluate whether selected microbial metabolites influence the response of BC cells to chemotherapy agents. To this end, we are developing a three-dimensional cellular model incorporating BC cells, breast cancer–associated fibroblasts, and monocyte-derived macrophages, providing a biomimetic platform for bioactivity screening.

Overall, MIME aims to advance our understanding of the intricate interplay between the microbiome,

metabolism, and cancer treatment response. The study's findings could pave the way for personalized therapeutic strategies based on microbiome modulation to enhance the efficacy and outcomes of NAT.

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Biography of presenting author

Beatriz Teixeira holds a Bachelor´s degree in Biochemistry (2022) and a Master´s degree in Biochemistry - Biomolecular Methods (2024) from the University of Aveiro. Her Masters' dissertation focused on how microbial metabolites affect the response of lung cancer spheroids to chemotherapy drugs. Currently, Beatriz is a research fellow in the FCT-funded project MIME (Ref. 2023.14914.PEX), which explores the correlation between gut microbiome signatures in biological samples from breast cancer patients and their response to neoadjuvant therapy. Recently, she was awarded a PhD grant to develop the project "Biofabricated Breast Cancer-Stroma Organoids for Screening Microbial Metabolites on Neoadjuvant Therapy Outcomes".

Keywords : Microbiota, Metabolomics, Breast Cancer

OCCUPATIONAL EXPOSURE TO ANTINEOPLASTIC DRUGS AND REPRODUCTIVE HEALTH RISKS IN HEALTHCARE WORKERS: A SYSTEMATIC REVIEW

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Abstract

Background: Antineoplastic drugs (ANPDs) are essential in treating cancer, autoimmune disorders, and HIV. Their cytotoxic, mutagenic, and teratogenic properties pose well-recognized risks after direct use but may also pose a risk to healthcare professionals through occupational exposure.

Objective: Review the evidence on reproductive risks associated with occupational exposure to ANPDs among healthcare workers, focusing on pregnancy and the preconception outcomes.

Methods: A systematic search was conducted across the PubMed ® , Scopus ® , and Web of Science ® databases to identify studies from inception to October 2025 reporting occupational exposure to ANPDs among healthcare workers and their reproductive risks. Two authors independently screened titles, abstracts, and full texts for eligibility using Covidence ® . Risk of bias was evaluated using the JBI critical appraisal tools. Forest plots were generated to visually synthesize effect estimates, reported as odds ratios (ORs) with 95% confidence intervals (CIs).

Results: Seventeen studies assessed spontaneous abortion/miscarriage associated with occupational exposure to ANPDs, with pooled analysis yielding a fixed-effect OR= 1.48 (95% CI: 1.36–1.62), indicating a statistically significant elevated risk. Infertility was investigated in seven studies, showing a consistent trend toward reduced fertility, although the association did not reach statistical significance (OR = 0.98, 95% CI: 0.96–1.00). Six studies assessed preterm birth, with statistically significant increased risk observed (OR = 1.08, 95% CI: 1.01–1.16). Five studies investigated low birth weight (LBW), with pooled estimates indicating a small but significant increase (OR = 1.10, 95% CI: 1.06–1.15). Eight studies examined

congenital malformations or birth defects, with no significant association found overall (OR = 1.01, 95% CI: 0.92–1.12).

Conclusions: Occupational exposure to ANPDs may pose an increased risk to reproductive health, particularly concerning miscarriage and infertility. Indications for an increased risk of preterm birth, LBW, and congenital anomalies are less consistent but cannot be excluded at higher exposure levels.

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Biography of presenting author

Carolina Bento Valeiro is from Pombal, and holds a Bachelor's degree in Pharmacy (IPC, 2021) and a Master's in Pharmacoepidemiology and Pharmacovigilance from the University of Bordeaux (2024). She is currently a PhD candidate in Pharmacy at the University of Seville, focusing on pharmacovigilance, drug safety and medicinal plants. Since 2025, she has been a Research Assistant at the European Association of Pharmacy Technicians, contributing to Erasmus+ projects on professional development and mobility in pharmacy. She has published in international Q1 journals and is a member of CIDNUR (ESEL) and ISAMB (FMUL), where she develops part of her doctoral research.

Keywords : Reproductive Health, Antineoplastic Agents, Occupational Exposure

USING A SEX-SPECIFIC FINITE ELEMENT HEAD MODEL TO EVALUATE INJURIES FROM SPORTS PRACTICES

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Abstract

Understanding sex-specific mechanisms of traumatic brain injury (TBI) in an ethical and economically viable manner, requires computational models that accurately represent female cranial and cerebral anatomy, tissue properties, and impact dynamics. Existing finite element head models (FEHMs) predominantly reflect male morphometrics, limiting their suitability for evaluating injury mechanisms in female athletes [1,2]. The present study introduces the FeFEHM [3], a female FEHM developed to evaluate injury mechanisms in female athletes, and its feasibility through two independent experimental datasets: controlled soccer heading events from youth female athletes and real-world boxing impacts collected through Triax mouthguards [4].

A total of eight case studies were obtained in collaboration with the University of Delaware [5], all of which involved the use of protected youth-player heading protocols. Three-dimensional kinematic waveforms, including peak linear acceleration, peak rotational velocity, were utilised as boundary conditions for the FeFEHM simulations. The quantification of brain tissue responses was conducted using maximum principal strain (MPS) across critical regions, including the corpus callosum and pituitary gland. A complementary dataset was obtained from active female boxers in Portugal using Prevent Biometrics mouthguards [6] during sparring and competitions. This data comprises high-magnitude impact events, which are not commonly observed in the context of soccer, allowing the assessment of the FeFEHM robustness across a more extensive loading spectrum. All simulations were performed in Abaqus/Explicit 2017 with region-specific constitutive laws.

In both environments, the FeFEHM demonstrated numerical stability and sensitivity to impact severity and directionality, demonstrating the model's responsiveness to sport-specific mechanics. Future work includes differentiating cortical and trabecular cranial layers to enable skull fracture prediction, and incorporating intracranial structures such as the falx cerebri and tentorium cerebelli to improve biomechanical fidelity. Additionally, expanding the boxing dataset will support development of sport-specific injury metrics and contribute to enhanced health monitoring and preventive strategies for female athletes.

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Biography of presenting author

Carlos Cardoso holds a Master's degree in Mechanical Engineering from the University of Aveiro, where he is working as a research fellow, strengthening his expertise in computational mechanics. His research focuses on advanced finite element and multibody modeling of head impacts, especially in combat sports and among female athletes, with the goal of improving head injury prediction and assessing long-term sequelae such as chronic traumatic encephalopathy (CTE) and endocrine dysfunctions. Carlos collaborates with international institutions including the University of Delaware, the Federal Highway and Transport Research Institute (BASt), and the Portuguese Boxing Federation, integrating real-world sensor data and simulation validation.

Keywords : Female Head Injury, Finite Element Analysis, Sports Biomechanics

NOTIFICATION OF INCIDENTS AND ADVERSE EVENTS IN PRIMARY HEALTH CARE: CAUSES OF UNDERREPORTING

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Abstract

Clinical governance is an essential pillar in promoting the quality, safety, and efficiency of healthcare, particularly in Primary Health Care (PHC), where the citizen's first contact with the system occurs. However, underreporting of incidents and adverse events remains one of the main challenges to the effective implementation of a safety culture. This study analyzes the causes of underreporting in PHC, based on scientific evidence.

Using the Ishikawa Diagram and the 5 -Why technique, four major categories of causes were identified: culture/personnel, organization/system, processes/methodology, and education/training. Among these, a punitive culture and fear of reprisals emerge as the root cause of underreporting, associated with the lack of feedback, distrust in systems, and workload overload. Despite the existence of formal tools such as Notifica and RISI, the negative perception of their use reveals weaknesses in the practical implementation of the safety culture and institutional leadership.

The results highlight the need to strengthen continuous training, promote internal clinical audits, and develop transformational leadership that fosters transparency, trust, and organizational learning. Valuing near misses as opportunities for improvement and integrating incident discussions in multidisciplinary teams are central strategies to consolidate a non-punitive and participatory culture.

It is concluded that strengthening safety in PHC depends on sustained cultural change, where incident reporting is understood as a prevention tool rather than punishment, contributing to safer, more resilient, and patient-centered health systems.

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Isabel Celina Machado Garcez Moreira, MSc Nurse Manager in Primary Health Care at Estarreja and Murtosa Health Centers. Holds a Master's in Family Health Nursing and is a Specialist in Rehabilitation Nursing. Member of the Aveiro Region Local Health Unit (ULSRA), with a dedicated focus on healthcare quality and patient safety.

Keywords : Health Information Systems; Primary Health Care;Risk Factors

PATIENT COMPLAINTS AT SÃO BENTO FAMILY HEALTH UNIT: AN OBSERVATIONAL ANALYSIS IN PRIMARY HEALTH CARE (2022–2025)

Samuel Canelas (Portugal)1,2; Marta Ferreira Rodrigues (Portugal)1,2; Joana Saraiva Santos (Portugal)1,2

1 - USF São Bento; 2 - ULS de Santo António

Abstract

Introduction:

Patient complaints are a central tool for quality research in primary health care (PHC). They help identify organisational failures, barriers to access, communication problems and aspects related to patient safety. In the post-pandemic period, particularly after 2022, service functioning and user experience may have been influenced by structural and organisational changes, making the systematic analysis of complaints at local level especially relevant.

Objectives:

To investigate the patterns and determinants of complaints at São Bento Family Health Unit (USF São Bento) between 2022 and 2025 and to compare them with national data from the Portuguese Health Regulatory Authority (ERS).

Methods:

Observational, descriptive and retrospective study. All complaints recorded in the paper and electronic Complaints Book (Livro Amarelo/SIM-Cidadão) were included. Complaints were classified according to SGREC-ERS themes and subthemes. A descriptive analysis was performed and results were compared narratively with SGREC 2023–2024 reports and the 2024 Activity and Management Report.

Results:

A total of 148 complaints were analysed. Administrative Procedures predominated (61.5%), a proportion clearly higher than the national pattern (~18%). This was followed by Access to Health Care (22.3%) and Health Care and Patient Safety (12.2%). Complaints related to relationship, attitude and communication were not absent but were often embedded within administrative or access categories. The most frequent subthemes were ordering of diagnostic tests (n=16), absence of clinical staff (n=12) and registration with the unit/family doctor (n=19). Local factors such as a

growing immigrant population, legal constraints on registering users without regularised documentation, medical retirement, prolonged absences due to pregnancy/leave and difficulty

securing replacements influenced these results.

Discussion/Conclusion:

The local pattern differed markedly from national data, reflecting predominantly administrative and access challenges shaped by demographic and organisational factors. Systematic analysis of complaints emerges as a relevant research tool and a support for continuous quality improvement in PHC.

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Keywords : Health Management, Primary Care, Complaints

PERCEPTIONS OF PORTUGUESE HEALTHCARE PROFESSIONALS ON THE 4-DAY WORKWEEK: AN EXPLORATORY CROSS-SECTIONAL STUDY

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Abstract

Background: the COVID-19 pandemic and burnout have worsened the human resources crisis in healthcare, leading professionals to exit the sector. The Four-Day Workweek emerges as a potential solution to mitigate this problem, though there is little information on its application in healthcare.

Objectives: to understand healthcare workers' views on this initiative, assessing its impact on the sector's functioning and professionals' lives. Methodology: exploratory cross-sectional study with a voluntary and consented questionnaire and a convenience sample of 2004 healthcare workers. Analysis was conducted using the Kolmogorov-Smirnov and Kruskal-Wallis tests ($p<0.05$).

Results: The sample was composed of 2004 participants, predominantly women (81.7%), aged between 25 and 44 years (58.1%). Most work in the public sector (79.5%), with a significant representation in hospitals (51.4%) and primary healthcare units (45.4%). 38.5% were doctors and 35.2% nurses. The four-day workweek is perceived as positive in reducing absenteeism, increasing productivity and job satisfaction. Expected benefits include better work quality and concentration, greater job stability and professional fulfilment. Despite challenges such as additional workload and multitasking, the model appears beneficial for retaining professionals and balancing personal and work life. Respondents expect more leisure time and reject negative impacts on family, health, and well-being. Options involving a four-day workweek with salary cuts appear to be rejected. Given the methodological limitations, these results should be interpreted with caution.

Conclusion: Overall, this initiative is viewed as a promising approach to improving the work environment, increasing productivity, and reducing absenteeism, without compromising service quality or raising costs. In addition to potentially contributing to job stability and professional well-being, it may reduce stress and improve mental health. Healthcare workers seem to prefer a modality without salary reduction. It's implementation seems to require particular attention to critical dimensions (workload management , the need for planning and effective operationalization).

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From Porto, Portugal. I'm curious, committed to discovery, defender of a humanist science useful to Mankind. I'm dedicated to integrated primary care, evidence-based practice, and continuous professional development. Passionate about global knowledge exchange, improving clinical skills, and delivering high-quality, patient-centered care.

My current interests include Family Medicine, Preventive Medicine, Emergency Medicine, Travel Medicine, Respiratory Diseases, Musculoskeletal Diseases, Smoking Cessation, Nutrition, Obesity, Exercise Prescription and Sports Medicine, Occupational Health, Healthcare Management and Economics.

Keywords : healthcare management, four-day workweek, personnel management

NARRATING CARE: LISTENING AND READING AS SCIENCES OF THE HUMAN

Maria Cabral (Portugal)1

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Abstract

Listening constitutes the foundational gesture of clinical practice and the hermeneutic axis of Narrative Medicine, understood as a discipline that intertwines interpretation, empathy, and knowledge - teaching, as João Lobo Antunes wrote, to “listen with other eyes” (Antunes, 2015). Within the clinical encounter, narrative operates as a cognitive and ethical mediator, integrating experience, emotion, and clinical reasoning (Cabral, Charon et al., 2019).

The analysis of medical consultations conducted in hospital settings, particularly at the Portuguese Institute of Oncology (IPO Lisbon), revealed the consultation as a performative and discursive space — a clinical stage where body, voice, and language generate meaning. Interpreting the encounter as a narrative act demonstrates that attentive listening functions simultaneously as an interpretive method and a form of relational evidence, expanding the epistemic scope of medical practice (Cabral, 2023).

Within this framework, reading emerges as a crucial operator of ethical reflection: the slow, attentive, and shared reading of literary texts trains both perception and listening for the complexity of human experience, fostering critical and relational competencies transferable to clinical care (Cabral & Mamzer, 2020). Reading and listening thus become complementary practices of attention and understanding - foundations of a medicine that recognises the word itself as a form of care.

By bridging clinical observation and educational innovation, this presentation reconfigures listening and reading as sciences of the human - epistemic modes linking observation and interpretation, data and meaning, gesture and word.

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This work draws on research and pedagogical initiatives in Narrative Medicine conducted across Portuguese universities and hospital settings, with gratitude to the interdisciplinary teams involved in the IPO Lisbon study.

Biography of presenting author

Maria de Jesus Cabral is Assistant Professor with Habilitation at the University of Aveiro (Department of Languages and Cultures) and a specialist in literary reading and its ethical and epistemic dimensions. Holding a PhD and postdoctoral training in French and Comparative Literature, her research bridges literature, ethics, and medicine. She co-founded the first Narrative Medicine course in Portugal (University of Lisbon, 2012–2019) and has led interdisciplinary projects linking clinical practice and the humanities. She teaches Narrative Medicine and Medical Humanities at the University of Minho, the University of São Paulo, Université Paris-Cité, and Université de Bordeaux.

Keywords : Narrative Medicine; Clinical Listening; Ethical Reading.

CHROMATIN PRIMING DURING DIFFERENTIATION GENERATES INTERMEDIATE STATES LIABLE TO ONCOGENIC TRANSFORMATION

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Abstract

Oncogenesis involves genetic and epigenetic changes that transform normal cells into cancerous ones. Remarkably, oncogenic signals can promote transformation in certain cell types but be innocuous in others. We hypothesize that this differential response is dictated by the epigenetic profile of each cell type.

To explore how epigenetic states modulate the cellular response to oncogenic signals, we used the Drosophila eye imaginal disc. This single-layer epithelium contains three distinct cell populations in progressive differentiation states derived from a common origin. Using genetic tools, we analysed in vivo how epigenetic states modulate the response to strong proliferative signals. Paradoxically, cells at later differentiation stages proliferate more in response to the conserved Hippo pathway transcriptional regulator Yorkie (Yki) than the undifferentiated precursors.

Analysis of the molecular signatures of each cell state revealed a switch in chromatin accessibility at motifs recognized by the pioneer factor grainy head (grh) that correlate with the promotion of over-proliferation by Yki. Moreover, genetic interaction analyses uncovered a synergy between Grh activity and Yki-induced proliferation in responsive regions. Notably, forced Grh expression can restore proliferation and partial cell identity in regions where ectopic Yki impaired both processes. In addition, we observed that Grh is required for Yki-induced expression of the proliferation-related target miRNA bantam in intermediate differentiation states.

Our data support a model in which genome-wide epigenetic changes mediated by pioneer factors during differentiation create intermediate states that render cells susceptible to oncogenic transformation.

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Biography of presenting author

Torcato Martins completed his PhD in Biomedical Sciences in 2010 (ICBAS, University of Porto). Since then, Torcato has been using Drosophila melanogaster to address fundamental questions underlying the coordination of organ differentiation with the cell division. In 2021, Torcato obtained a Marie Curie Fellowship to return from the United Kingdom and develop his research interests at the iBiMED by studying the relationship between chromatin state and oncogenic potential.

Keywords : Epigenetic regulation, Pioneer factors, Oncogenic transformation

PROFILING THE MAJOR HISTOCOMPATIBILITY COMPLEX CLASS I IN MOUSE EMBRYONIC STEM CELLS

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Abstract

Cancer vaccines are an evolving type of immunotherapy. Our team has demonstrated that pre-exposure of mice to TNG-A embryonic stem cells decreased the size of tumors caused by implantation of E0771 breast cancer cells (Correia et al., 2025). This anti-cancer effect was most likely mediated by an immune response triggered by antigens presented by the major histocompatibility (MHC) class I of TNG-A cells. To understand its molecular basis, we sought to identify and quantify the MHC class I haplotypes presented by TNG-A cells.

We utilized flow cytometry to determine the percentages of TNG-A cells expressing the MHC class I haplotypes H-2Dk and H-2Kb, using E0771 cancer cells as a positive control.

While H-2Kb was expressed on the surface of about 89% of E0771 cells, the H-2Dk haplotype was not detected. Concerning TNG-A cells, none of the two haplotypes was detected on their surface. However, when these cells were treated with interferon gamma, the percentages of cells expressing these haplotypes increased to 1-5% for H-2Dk and 7-11% for H-2Kb. We also assessed the percentages of the two MHC class I haplotypes in the cytoplasm of TNG-A cells, after cell fixation and permeabilization. The H-2Dk haplotype was found in 2-4% of the cells, while the H-2Kb haplotype was detected in less than 1%. These percentages remained identical upon TNG-A differentiation into a cancer-like phenotype, indicating that the H-2Dk haplotype is expressed but not translocated to the cell surface. Immunopeptidomics work is in progress to determine the sequences of the MHC class I-presented peptides.

Our results contribute to characterizing antigen presentation on TNG-A cells, which will be useful in the optimization of our vaccine for breast cancer based on mouse embryonic stem cells.

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We thank Bruno Neves, Magda Correia, and Francisco Santos for their useful experimental advice and Mariana Alves for technical assistance in flow cytometry.

Biography of presenting author

Biochemist by training, the presenting author holds a PhD in Biomedical Sciences from the University of Porto (Portugal). He is a junior researcher at the Institute of Biomedicine of the University of Aveiro, at Bruno Bernardes de Jesus' lab. His main scientific interests include understanding the molecular mechanisms responsible for cellular presentation of antigens with anticancer properties.

Keywords : mouse embryonic stem cells, major histocompatibility complex class I, flow cytometry

GAL-3 INHIBITORS AS RADIOSENSITIZERS FOR PROSTATE CANCER

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Abstract

Introduction

Radioresistance in prostate cancer (PCa) remains a major therapeutic challenge. Galectin-3 (Gal-3) is overexpressed in aggressive PCa and has been implicated in mechanisms of therapy resistance [1, 2]. This study evaluated the role of Gal-3 in radioresistance and assessed the effect of its pharmacological inhibition using GB1107 [3].

Methods

Parental (22RV1-P) and radioresistant (22RV1-RR) PCa cell lines were treated with GB1107. Western blotting was used to assess Gal-3 and PP1α expression. Cell viability (PrestoBlue™), migration (wound assay), and clonogenic survival post-irradiation were evaluated. Statistical significance was set at $p < 0.05$.

Results

Gal-3 was significantly upregulated in 22RV1-RR cells ($p = 0.0237$). GB1107 reduced viability and impaired migration in both cell lines. Radiosensitisation was observed in 22RV1-P ($p < 0.0001$) but not in 22RV1-RR ($p = 0.1258$). A non-significant increase in PP1α expression was detected in RR cells.

Conclusion

Gal-3 contributes to radioresistance in PCa. Further studies are needed to clarify the role of PP1α and optimise Gal-3-targeted strategies.

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Biography of presenting author

Renato M. Rodrigues holds a Master's in Molecular Biomedicine (2025) and a Bachelor's in Biomedical Sciences (2023) from the University of Aveiro, where he is a Research Trainee at iBiMED. His work focuses on molecular mechanisms in prostate cancer, integrating cell culture, molecular biology, and translational research. He also completed a Postgraduate Course in Clinical Research in Health Services (2025), strengthening expertise in study design, ethics, and data analysis. With experience in pedagogical innovation and leadership, including roles in the SEVERE Project and academic organisations, he combines biomedical research, education, and data analysis to foster scientific and societal advancement.

Keywords : Prostate Cancer (PCa), Galectin-3 (Gal-3), Radioresistance

REVISITING EXERCISE-RELATED PROTEOMICS DATA TO IDENTIFY A MOLECULAR SIGNATURE FOR EXERCISE MIMETICS IN CANCER

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Abstract

Physical exercise is recognized as a nonpharmacological therapy that can be integrated into multimodal care approaches, especially for cancer patients, by improving prognosis and quality of life. However, many patients, are unable to consistently participate in exercise programs. For these patients, the development of exercise mimetics may be a promising pharmacological alternative. To support this goal, is essential to identify the molecular mediators underlying exercise anticancer benefits. Hence, this project aims to identify exercise-induced molecular mediators (including those within extracellular vesicles) by integrating and reanalyzing human proteomic datasets. Proteomics datasets were obtained from PRIDE(PRoteomics IDEntifications Database) using the keyword "exercise". From 182 datasets, a manual selection was performed resulting in five datasets (PXD058255; PXD020122; PXD058573; PXD050113; PXD026483), comprising 434 raw files from different exercise modalities (aerobic, resistance and combined), multiple timepoints (before exercise, immediately after exercise) and different plasma fractions (total plasma, extracellular vesicles and peripheral blood mononuclear cells). Raw files were reprocessed in MaxQuant (v2.5.0) against a human proteome database (UniProt, September 2025) for label-free quantification. The results were annotated and filtered in Perseus (v2.1.5), removing contaminants and reverse sequences to retain only high-confidence results. K-Nearest Neighbors (KNN) imputation was applied to handle missing values and data normalization was performed by log2 transformation. Results were uploaded into MetaboAnalyst 6.0 for univariate statistical data analysis of proteins expression between two groups (sampling timepoints) using fold change analysis (FC) and t-test, results were visualized in volcano plot combining results from both analysis. Multivariate analysis were performed using Principal Component Analysis (PCA) in R (v4.4.0) with the RforProteomics

package. The identified proteins were used to construct a network in STRING (v12.0) with a minimum interaction score of 0.400. By integrating proteomics data, this project aims to uncover conserved protein signatures of different exercise types, giving insights into molecular mechanisms of exercise.

Acknowledgements: This work was supported by national funds from the FCT – Portuguese Foundation for Science and Technology, under the project UID/50006 -Laboratório Associado para a Quimica Verde - Tecnologias e Processos Limpos.

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Biography of presenting author

Inês Aires has a master in Biochemistry from UA, specializing in Clinical Biochemistry. Her master thesis was conducted at LAQV-REQUIMTE/UA and CITAB/UTAD, where she explored the impact of resistance exercise on doxorubicin-treated breast cancer-induced muscle remodeling, in a rat model. From her work resulted the authorship two review papers and co-authorship of three experimental articles. Soon after, she participated in PROTECT project in IPO-Porto investigating exercise as prehabilitation tool. Currently, she is a PhD student in collaboration between UA, FADEUP and UTrento, with thesis title of “From Motion to Medicine: Paving the Way for Exercise Mimetics in Cancer Management.

Keywords : Physical activity, Extracellular vesicles, Proteomics

FTIR SPECTROSCOPY AS A COMPLEMENTARY TOOL IN THE DIAGNOSIS OF THYROID NODULES

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Abstract

The clinical approach of thyroid nodules (TNs) remains challenging, particularly in cases of indeterminate cytology, where diagnostic uncertainty may lead to unnecessary surgeries. Identifying reliable complementary tools is, therefore, essential. Fourier-transform infrared (FTIR) spectroscopy, a metabolomic technique, has already shown promise in differentiating malignant from benign thyroid tissue based on biochemical alterations.

This study aimed to assess the potential of FTIR spectroscopy to distinguish plasma biochemical profiles among patients with different TNs diagnoses.

A prospective cohort of 311 patients with TNs was recruited between May 2021 and March 2024, in collaboration with the Endocrinology Department of ULSRA (Ethical approval: 39-01-2019). Sociodemographic and clinical data were obtained from consenting participants through a structured interview specifically developed for this study1, and complemented with information from medical records. Blood and cytology samples were collected for FTIR spectroscopy analysis. Spectral data were processed using The Unscrambler software for multivariate data analysis, alongside peak intensity evaluation.

311 TNs patients (57.41±13.75y, 83.6%♀, Bethesda: I-11.9%, II-63.3%, III/IV-23.4%, V/VI-1.3%) were recruited. A preliminary exploratory analysis was conducted on a subset of 20 patients (46.8±8.13y, 100%♀, Bethesda: II-20%, III/IV-60%, V/VI-20%). No significant between-group differences were observed regarding sociodemographic (age), biochemical (TSH and FT4), or ultrasound features (nodule size, number, location, composition, calcifications, and halo) ($p>0.05$).

Despite the absence of significant clinical differences, Partial Least Squares Regression (PLS-R) analysis of FTIR spectra revealed higher discriminatory value across cytological categories.

Malignant samples were characterized by increased absorbance in lipid (≈1744 cm^{-1}), protein (≈1534 cm^{-1}), and nucleic acid (≈1090–1059 cm^{-1}) bands, reflecting enhanced metabolic activity typical of cancer. Benign samples exhibited peaks associated with fatty acids, phospholipids, and carbohydrates (≈1444–914 cm^{-1}), consistent with normal metabolic profiles.
FTIR spectroscopy demonstrates potential for identifying metabolic differences among cytological categories, supporting its use as a complementary, non-invasive tool for TNs assessment.

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Biography of presenting author
Holds a BSc in Biomedical Sciences and an MSc in Molecular Biomedicine from the University of Aveiro, and is currently pursuing a PhD in Biomedicine in collaboration with NOVA Medical School. Research at the Institute of Biomedicine (iBiMED) focuses on applying vibrational spectroscopy to improve thyroid nodule diagnosis. Has co-authored several scientific publications, including first-author papers, collaborates in teaching activities within the Biomedical Sciences degree, is a member of the iBiMED PhD Students' Committee, and has participated in the organization of scientific events and outreach activities.

Keywords : Nodular Thyroid Pathology, FTIR Spectroscopy, Diagnostic Biomarkers

UNRAVELLING DEREGULATED METABOLITES IN SEMINAL PLASMA OF INFERTILE MEN: A SYSTEMATIC REVIEW AND BIOINFORMATIC ANALYSIS

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Abstract

Male infertility is a multifactorial condition often associated with metabolic impairment. However, conventional semen analysis fails to identify these molecular mechanisms. Metabolic approaches offer valuable insights into sperm metabolomic dysfunctions, enabling the identification of deregulated pathways involved in male infertility. Here, we systematically reviewed metabolomic studies that compared the seminal plasma metabolome of healthy and infertile men to identify metabolites as potential markers of infertility. A literature search was conducted in PubMed, Scopus, and Web of Science databases following the PRISMA guidelines. Eighteen metabolomic studies were included and categorized into three groups: asthenozoospermia, oligozoospermia, and obesity. Additionally, a combined analysis of all studies was conducted to identify commonly deregulated metabolites. A total of 202 metabolites were identified of which eleven (L-Tyrosine, D-Fructose, L-Valine, Phenylalanine, Proline, D-Glucose, Alanine, Leucine, Sorbitol, L-Aspartic acid and Uridine), six (D-Fructose, Glycine, Maleic Acid, L-Valine, Proline and Lysine), and nine (L-Carnitine, L-Tyrosine, L-Valine, Alanine, Phenylalanine, Proline, D-Glucose, Leucine and Malic Acid) were altered in asthenozoospermia, obesity, and overall infertility, respectively. These metabolites were predominantly associated with pathways such as phenylalanine and tyrosine metabolism, fructose and mannose degradation, and β-oxidation of very long chain fatty acids. Bioinformatic analysis of the enzymes involved in these pathways (e.g., IL4I1, SORD, HMOX1) revealed associations with male infertility phenotypes and key sperm functions, including motility, vitality and energy metabolism. This study provided a list of metabolites altered in the seminal fluid of infertile men, highlighting their potential as biomarkers of male infertility and underscoring the need of further investigation.

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Biography of presenting author

He holds a BSc in Biomedical Sciences from the University of Aveiro and is currently attending the master's in Molecular Biomedicine at the same institution. During his undergraduate studies, he had the opportunity to be involved in a project focused on the identification of potential biomarkers for male infertility, having identified deregulated metabolites in the seminal fluid of infertile men. He is currently conducting his master's thesis at the Institute of Biomedicine. His work aims to evaluate the penetrative ability of second-generation bioportides in bovine sperm, as well as their impact on sperm motility and viability.

Keywords : seminal fluid; metabolome; male infertility

MERCURY EXPOSURE AND REPRODUCTIVE HEALTH: INSIGHTS FROM 150 WOMEN OF CHILDBEARING AGE

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Fish consumption is a major source of methylmercury (MeHg) exposure, which has been linked to adverse reproductive outcomes, including infertility. Portugal has the highest per capita fish consumption in the European Union, providing important nutritional benefits such as omega-3 fatty acids, vitamins, and selenium. However, this dietary pattern also carries risks due to the bioaccumulation of environmental contaminants like MeHg, polychlorinated biphenyls (PCBs), and dioxins. MeHg exposure is particularly concerning during pregnancy because of its potential to impair fetal central nervous system development. Despite this, few studies have addressed MeHg exposure in women of reproductive age—a population especially vulnerable to its reproductive effects.

This longitudinal study included 150 women aged 16–45, enrolled between 2014 and 2024 at Egas Moniz Health Alliance clinics during prenatal care or infertility consultations. Hair samples were collected to assess chronic MeHg exposure using atomic absorption spectrometry (DMA-80 evo, Milestone). All data were anonymized and treated confidentially. The study aimed to evaluate the influence of environmental and dietary factors on MeHg levels and reproductive health outcomes.

MeHg levels ranged from 0.0840 to 5.2844 µg/kg, with a mean of 0.9632 ± 0.6699 µg/kg. Notably, 38% of participants had levels exceeding the U.S. EPA reference limit of 1 µg/kg. In 11 of the 31 municipalities represented, average MeHg concentrations surpassed this threshold, suggesting localized exposure risks. Statistically significant associations were found between MeHg levels and both fish consumption ($p < 0.001$) and infertility history ($p = 0.004$). No significant associations were observed with age, BMI, year, or zip code.

These findings underscore the role of dietary habits in MeHg exposure and its potential link to

infertility. Public health strategies should promote safe fish consumption and implement targeted interventions in high-risk areas to reduce MeHg exposure and protect reproductive health.

Keywords: mercury, fertility, pregnany

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Biography of presenting author

Senior Clinical Embryologist certified by ESHRE and the Portuguese Order of Biologists. She has been working in the field of assisted reproduction since 2010 and is currently based at the Local Health Unit of Gaia and Espinho (ULSGE), Portugal. Madalena is also pursuing a PhD in Molecular Biology at the University of Aveiro, with a research focus on environmental exposures—particularly mercury—and their impact on human fertility. She has presented her work at national and international conferences and is actively involved in professional and academic initiatives promoting reproductive health and environmental awareness.

CENTER OF PRESSURE AND GAIT SPATIOTEMPORAL PARAMETERS: A CROSS-SECTIONAL FACTOR ANALYSIS TO DISCRIMINATE FUNCTIONAL DISABILITY IN OLDER ADULTS

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Background: Previous studies have associated biomechanical changes with disability (1), but few have examined biomechanical variables expressing postural control as center of pressure (CoP) measures (2-4). Common limitations in existing research include small samples, lack of control groups, and limited interpretation of CoP data (5). Furthermore, because functional disability cannot be defined by a single measure, a comprehensive set of indicators consistent with the International Classification of Functioning, Disability and Health is recommended (6).
Objective: This study aimed to perform a factor analysis, including CoP measures and spatiotemporal gait parameters to distinguish older adults without and with functional disability.
Methods: A cross-sectional study was conducted with 60 community-dwelling older adults, categorized into a group without disability (n=35) and a group with two or more indicators of functional disability (n=25), based on self-reported health status, activities of daily living, handgrip strength and balance. Participants' overground gait performance was analyzed with an optoelectronic system. Principal component analysis (PCA) was used to identify principal components models based on spatiotemporal gait parameters and CoP mediolateral and anteroposterior displacement, mean velocity, and variation for both lower limbs. Differences between principal component (PC) Z-scores between groups were assessed ($p < 0.05$).
Results: Four PCs were retained for the spatiotemporal model, explaining 83% of the total variance, and three PCs were retained for the CoP measures, explaining 78%. Significant differences between groups were found for PC1 of the spatiotemporal model, mainly characterized by cycle time, gait speed, cadence, and left and right cycle time; and for PC3 of the CoP model, primarily reflecting right and left CoP anteroposterior mean velocity.

Conclusion: Combining CoP measures, particularly anteroposterior mean velocity, with spatiotemporal gait parameters can distinguish older adults with functional disability. CoP-derived

metrics may help detect early functional decline, supporting their integration alongside gait analysis in clinical assessments.

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Biography of presenting author

Physiotherapy graduate from School of Health of the Polytechnic Institute of Porto (2011). She obtained her M.Sc. (2017) in Palliative Care at the Faculty of Medicine of the University of Porto and her Ph.D. (2025) in Physiotherapy at the Faculty of Sport of the University of Porto. Additionally, she is collaborating with the Center for Rehabilitation Research in the area of Human Movement System Rehabilitation. She has published several articles in specialized journals, book chapters, participated in funded research projects and several national and international conferences. Her main research areas include Human Movement and Biomechanics.

Keywords : Principal Component Analysis, Geriatrics, Postural Control

CO-CREATING HEALTH INNOVATION - PROJECT HIV-XXI: BUILDING COLLABORATIVE BRIDGES BETWEEN HEALTHCARE STAKEHOLDERS

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Abstract

As human immunodeficiency virus (HIV) evolves into a chronic condition, new challenges emerge that transcend virological control.1 The HIV-XXI project aimed to promote a paradigm shift in how people living with HIV (PLWH) are supported in Portugal - placing quality of life, long-term care, and integrated support at the center of national health strategies.

Through the creation of a structured, multistakeholder forum, HIV-XXI brought together clinicians, public health experts, policymakers, patient association representatives, and researchers to openly discuss unmet needs and emerging priorities in HIV care. This collaborative effort led to the development of a comprehensive white paper that reflects the collective insights of these diverse actors, grounded in scientific evidence and practical experience.2 Key discussion themes included: restructuring models of care to better integrate primary care and community-based services; addressing stigma and psychosocial wellbeing; supporting ageing with HIV and comorbidities; and promoting shared decision-making and patient-centered outcomes.3 Additionally, the white paper outlines actionable recommendations across three key domains: healthcare system reform, multidisciplinary training of professionals, and empowerment of PLWH as active agents in their care.2,3

This project illustrated how strategic dialogue among stakeholders may translate complex challenges into concrete, policy-relevant technical guidance. In fact, the resulting white paper may come to serve as a foundation for future national strategies, promoting a holistic, inclusive, and evidence-based approach to HIV care in Portugal.

HIV-XXI was not only a call to action, but also a model of participatory health innovation - where science, policy, and lived experience intersected to shape the future of chronic disease management.

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We would like to express our sincere gratitude to all participants of the HIV-XXI project for their valuable contributions, including healthcare professionals, representatives of people living with HIV (PLWH), policymakers, and academic experts. Their insights, shared in a spirit of openness and collaboration, were essential to the success of this initiative. We especially thank all those who took part in the multistakeholder discussions and generously contributed their experience to help shape the strategic recommendations presented in this work.

Biography of presenting author

Currently serving as the Scientific Director at Q2Science, he leads consultancy projects in clinical research, health communication, and postgraduate training. He holds a Doctor of Medicine (MD) from Universidade de Lisboa and a Master of Public Health (MPH) from The University of Edinburgh. With over 15 years of experience as a physician and medical educator, he has worked across public health, applied epidemiology, healthcare management, and international research. He regularly lectures on epidemiology and scientific communication, focusing on health literacy and translational science. His work bridges the gap between complex research settings and everyday clinical practice to empower healthcare professionals.

Keywords : HIV Care Innovation, Multistakeholder Health Strategy, Patient-Centered Chronic Disease Management

WEBITAM: BUILDING INTERNATIONAL BRIDGES IN ONCOLOGY

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Abstract

Cancer is the second leading cause of mortality from non-communicable diseases, with approximately 20 million new cases and 10 million deaths in 2022. Advances in multi-omics analyses offer opportunities to investigate tumor biomarkers and molecular targets, contributing to cancer screening, diagnosis, prognosis, monitoring of disease progression, and treatment, including personalized medicine. The International Webinar on Tumor Biomarkers and Molecular Targets (WeBiTAM), promoted by CDTS | Fiocruz, aims to update the academic and scientific community, strengthen national and international cooperation networks, and foster innovation in Oncology between Latin America and Europe, especially Brazil and Portugal. Each webinar featured an institutional opening, two expert talks, and a moderated discussion. The scientific committee included two Brazilian and two Portuguese researchers. The broadcasts were live on Zoom and YouTube and remain available online. The initiative is supported by the Institute of Molecular Pathology and Immunology of the University of Porto (Ipatimup-i3S, UP), the Institute of Biomedicine of the University of Aveiro (iBiMED, UA), the Translational Research Program (Fiocruz), the Fio-Cancer network, the International Platform for Science, Technology and Innovation in Health (PICTIS) and Uromonitor. The first three editions of WeBiTAM held to date reached 134, 222, and 285 views, respectively, totaling 641 participants from 8 countries, with an average of 214 views and 7 questions per edition, standing out for the positive feedback from students, researchers, and authorities. The event consolidated its impact through invitations to present at national and international meetings such as the VIII Fio-Cancer Network Symposium, the I International Meeting

for Cooperation in Science, Technology and Innovation in Health (EICTIS), and the I Workshop on Epigenetics of Diseases (EpiWED). Our data highlight the strengthening of WeBiTAM's strategic role as an international event that promotes scientific update and collaboration in Oncology, with a focus on tumor biomarkers and molecular targets.

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Keywords : tumor biomarkers, cooperation network, molecular targets

EMPOWERING PHARMACY TECHNICIANS FOR IMMUNIZATION SERVICES: DEVELOPMENT OF A MOOC TO ADDRESS EDUCATIONAL GAPS IN EUROPE

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Abstract

Introduction: In healthcare systems where Pharmacy Technicians (PTs) are authorized to administer vaccines, such as the United States, their integration into immunization services has significantly alleviated the workload of community pharmacies and improved vaccination accessibility. However, in most European countries, PTs are not permitted to vaccinate, despite their recognized role in other aspects of pharmacy-based immunization workflows (documentation and screening). Addressing this regulatory and educational gap is critical for strengthening community pharmacy operations and improving access to vaccines.

This project aimed to develop a Massive Open Online Course (MOOC) designed to equip PTs with the foundational competencies required to participate in immunization services, thereby supporting future policy development and workforce expansion.

Methodology: Drawing upon evidence from an international scoping review on PTs' roles in immunization services and a comparative analysis of existing training programs, a curriculum framework was developed. The course was structured into 8 modules, delivered in a blended format (5 hours of theoretical instruction, 3 hours of practical training), incorporating both asynchronous content and simulation-based training.

Results: The MOOC includes modules on immunology and vaccine science, anatomy and physiology, public health, vaccine policy and pharmacovigilance, vaccine-specific knowledge and schedules, clinical safety and emergency preparedness, professional role development and ethics, and hands-on practice.

Discussion: The course provides a harmonized and evidence-based training pathway for PTs, which

can support broader integration into immunization roles across healthcare systems. By equipping PTs with the necessary theoretical and practical knowledge, the MOOC contributes to enhanced pharmacy workforce flexibility and service delivery capacity.

Conclusion: This MOOC represents a scalable, transferable educational model aimed at preparing PTs for future participation in immunization programs. Its implementation may support regulatory reform and promote equitable access to vaccination through community pharmacy services.

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Keywords : Immunisation Training, Curriculum Development, Pharmacy Technician

MAPPING PHARMACY TECHNICIAN EDUCATION ACROSS EQF LEVELS: TOWARD HARMONISATION AND CROSS-BORDER MOBILITY IN EUROPE

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Abstract

Introduction

Pharmacy Technicians (PTs) play a vital role in ensuring the safe, effective, and efficient delivery of pharmaceutical services. However, differences in educational levels and curricula across EU member states continue to challenge cross-border professional mobility and recognition. Understanding the disparities in training, particularly as referenced to the European Qualifications Framework (EQF), is essential to harmonizing PT education and supporting mobility.

This study aimed to compare the educational frameworks and core modules of PT curricula in three EQF levels (4, 5, and 6) to identify overlaps, gaps, and opportunities for harmonisation and mobility.

Methodology

Through a collaborative partnership, academic institutions from four countries (Ireland, Spain, Portugal, and Belgium) conducted a systematic mapping and qualitative analysis of PT educational curricula. A standardized matrix was developed to compare core modules. Modules were classified into thematic domains (e.g., pharmacy practice, pharmacology, toxicology and therapeutics), and each curriculum was analyzed for its alignment with its content.

Results

While all levels covered foundational pharmaceutical and dispensing competencies, significant variation was observed in the depth and scope of specific modules across EQF levels. The EQF 4 curricula focus on practical, workplace-oriented skills suited for hospital and community pharmacy settings. EQF 5 programs added broader pharmacy operations. And the EQF 6 program includes more scientific content, such as chemistry, aseptic techniques, and radiopharmacy, preparing

graduates for broader roles, including the pharmaceutical industry and radiopharmaceuticals.

Discussion

The findings demonstrate that while structural similarities exist, learning outcomes and professional scope are influenced by qualification level. This reinforces the need for modular alignment, flexible learning pathways, and transparent credentialing mechanisms to support vertical and cross-border mobility.

Conclusion

This curricular mapping supports efforts toward transparency, comparability, and mobility of Pharmacy Technicians. It advocates for collaborative curricular development and policy alignment to strengthen workforce integration across health systems.

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Keywords : Pharmacy Technician Education, European Qualifications Framework, Cross-Border Mobility

IMPLEMENTATION AND PERCEPTIONS OF OUTCOME MEASURES (CROMS, PROMS, AND PREMS) IN AMBULATORY REHABILITATION: A CROSS-SECTIONAL STUDY IN PORTUGAL

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Abstract

Introduction: Standardized outcome measures such as Clinician-Reported (CROMs) and Patient-Reported or Experience Measures (PROMs/PREMs) are essential to ensure quality, objectivity, and a truly patient-centered approach in rehabilitation [1,2]. Beyond quantifying progress, these tools capture how people perceive their health and the care they receive, information that can guide more personalized interventions [2,4]. Despite their recognized importance, little is known about how such measures are implemented in outpatient rehabilitation in Portugal. This study explored how healthcare professionals perceive and use these instruments in their daily work.

Methods: A cross-sectional online questionnaire was distributed to healthcare professionals working in ambulatory rehabilitation who reported using outcome measures. Descriptive analyses were performed to assess the frequency and type of use (CROMs, PROMs, PREMs) and the professionals' perceptions of their applicability and practicality.

Results: Among respondents 53% stated that CROMs are mandatory, 40% indicated the same for PROMs and 27% for PREMs. Even so, reported use was higher: 83% used CROMs, 75% PROMs, and 51% PREMs. The most valued criteria when choosing an instrument were being "quick to complete" (67%) and "easy for patients to understand" (64%). Most respondents (74%) reported completing the forms themselves rather than having patients do so, and 56% learned to use these measures in the workplace rather than during academic training. A significant association was found between gender and the use of outcome measures ($p=0.048$).

Conclusion: Professionals recognize the value of outcome measures in rehabilitation but still face challenges in applying them consistently [2,3]. Strengthening training and institutional support could help ensure that PROMs and PREMs - true reflections of the patient's voice - become routine tools for evidence-based, person-centered rehabilitation [1,4].

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Keywords : Outcome Measures, Patient-Centered Rehabilitation, Barriers and Facilitators

THE INSERTION OF AN INTERPROFESSIONAL MODULE IN THE CURRICULUM AT A HIGHER EDUCATION INSTITUTION FROM THE PERSPECTIVE OF THOSE INVOLVED

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Abstract

Introduction: Higher Education Institutions (HEIs) in the health field have been reformulating their curricula to promote interdisciplinary competencies. Active learning methodologies, such as Problem-Based Learning (PBL), stimulate student autonomy and strengthen interdisciplinarity. Interprofessional Education (IPE), aimed at collaboration among health professionals, has been incorporated to enhance care quality. In 2022, the Faculdade Pernambucana de Saúde, a higher education institution in the health field, created the Interprofessional Health Learning Center (CAAIS), focusing on the structuring and implementation of IPE. It is a user-centered practice in which all health areas come together to study each case individually and in an integrated manner, taking place in a specific physical space created for reception, debriefing, planning, and consultation activities. In addition, Interprofessional Education was incorporated into the curriculum matrix of all health courses, where students and faculty from the different health programs share an interprofessional module from the 1st to the 6th term, using CAAIS as their practice setting — the first of its kind in the country. Objective: To assess the perception of students and faculty of the physiotherapy course at a HEI in Northeastern Brazil regarding the inclusion of interprofessional modules in the curriculum matrix. Methods: Quantitative and descriptive study with 50 participants (43 students from the 1st to 4th term and module faculty). Data were collected through an online questionnaire and analyzed using descriptive statistics in SPSS. Item validity was assessed using the Content Validity Index (CVI), considered satisfactory when > 0.80. Results: Over 80% of students evaluated the modules positively, highlighting the development of leadership, empathy, communication, and decision-making (CVI between 0.72 and 0.93). Faculty assigned CVI = 1.0 but reported methodological challenges and the need for greater student motivation. IPE appears promising for health education, requiring ongoing

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Keywords : Interprofessional education, Problem-based learning, Physiotherapy

PREVENTION OF IATROGENIC DEPENDENCY IN OLDER ADULTS – HEALTHCARE PROFESSIONALS TARGETED TRAINING

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Background
Older adults may be exposed to high risk of iatrogenic dependency developing due to multiple health condition, polymedication, care procedures and ageing changes.1 The targeted training have been designed for healthcare professionals from hospital and primary care settings to prevent functional decline associated to health care.2,3 The objective was to improve healthcare professionals practices in the iatrogenic dependency prevention by enhancing knowledge, practical skills, teamwork approaches.
Methods
Three workshops were carried out at the Local Health Unit of the Aveiro Region. During training the concepts of iatrogenic dependency prevention were clarified including presentation of prevention models, assessments of functional decline risk, geriatric assessment, and adaptation of possible intervention strategies. In addition, the Integrated Care for Older People Program (ICOPE, WHO) was emphasized to improve the quality of life of older adults.4 The workshops included oral exposition and active methodology through virtual clinical cases, with SWOT analysis (strengths, weaknesses, opportunities, threats), and a discussion of these cases in a multidisciplinary team.
Results
A total of 49 healthcare professionals (44 women and 5 men) participated, including: 10 in the first workshop (6 primary care nurses, 3 hospital care nurses, 1 hospital pharmacist), 20 in the second workshop (10 hospital care nurses, 9 primary care nurses, 1 health assistant technician) and 19 in the third workshop (8 health assistant technician, 6 hospital care nurses, 3 diagnostic technicians, 1

primary care nurse, 1 hospital physician). Participants highlighted the importance of these interventions, appreciated thematic content and dynamic methodology of training addressing to

various healthcare professionals from both settings.

Conclusions

Strengthening the knowledge and strategies of iatrogenic dependency prevention among healthcare professionals contributes to healthy ageing. These sessions could improve awareness of the impact of iatrogenesis on the older adults' functional ability, and clinical case-based learning and discussion may encourage teamwork collaboration.

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Keywords : functional decline, workshop, healthy ageing

THE USE OF ELECTRONIC HEALTH RECORDS IN PHYSICAL THERAPY PRACTICE: PROTOCOL FOR A SCOPING REVIEW

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Abstract

Introduction: Physiotherapy (PT) has proven to be highly cost-effective in managing various health conditions, by reducing the demand for surgery, pharmacological treatment, hospitalizations, and long-term care.(1, 2) PT is essential in any healthcare system, but services still need improvement. Improving PT requires efficient collection of real-world data and in-depth data management to inform practices.(3) Electronic Health Records (EHRs) are a reliable data source in various healthcare settings,(4, 5) yet there continues to be little investment in these platforms, especially in PT. This scoping review aims to map the evidence on the multiple uses of EHRs in PT, to better understand their applicability in this field. Methodology: This protocol will follow the Joanna Briggs Institute methodological guidelines for scoping reviews.(6) Original studies and grey literature from 2010 onwards; written in English, Portuguese, or Spanish; describing the platforms or addressing their development, implementation, or impact on PT services will be included. Two independent reviewers will screen the articles for eligibility and extract data regarding EHRs' main characteristics (e.g. types of users, type of data collected, functions, context), implementation procedures (e.g. strategies, barriers, facilitators, outcome measures), and the effects on services after their adoption. The information will be registered, aggregated by categories, and displayed in tables and charts mapping the distribution of studies alongside a narrative summary. Discussion: The proposed scoping review will synthesize key knowledge on EHRs use in PT. This knowledge may help to identify advantages and pitfalls and provide literature-based insights into the steps, strategies, and procedures necessary for developing and implementing PT-specific EHRs systems. Ethics and dissemination:

No formal ethical approval is needed as no primary data will be collected during this review. The findings will be disseminated through publications and presentations and will be used as a resource in stakeholder meetings.

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Biography of presenting author

Marta Fernandes graduated with a bachelor's and master's degree in Physiotherapy, both at the Aveiro School of Health Sciences. She defended her thesis in the field of Occupational Physiotherapy and participated in the poster competition at the Porto International Hip Meeting 2022, winning first prize and presenting her work at the congress's Physiotherapists session. She has worked in clinical practice until completing her master's degree and joining the research area. She is currently a FCT and Rehabilitation Sciences' PhD fellow at the Aveiro School of Health Sciences, in collaboration with the Portuguese Order of Physiotherapists.

Keywords : Electronic Health Records, Health Outcomes, Physiotherapy

INMOTION APP: FROM RESEARCH TO MOVEMENT- A USER EXPERIENCE APPROACH TO ACTIVE LIVING

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Abstract

Global strategies, as the Sustainable Development Goals and the Social Determinants of Health, have a key target to reinforce access to affordable and quality healthcare for everyone.1,2 Over one-third of the global population fails to meet the physical activity (PA) recommendation of 150–300 minutes of moderate to vigorous PA weekly plus strength training at least twice a week, thereby increasing the risk of chronic diseases.3 Evidence suggests that mobile applications can help reduce sedentary behaviour and promote active lifestyles.4 This highlights the need to create innovative solutions for PA risk stratification and personalized prescriptions tailored according to individual needs.

To better understand the needs of future users to engage in a safe and more active lifestyle, the design thinking model (DTM) was being applied.5 During the empathize and problem definition phases a mix-method study was conducted with college students, that complete a multiple-choice and open-ended web-based survey. A descriptive and preliminary deductive-inductive thematic analysis was performed.6

141 students (24.64 ± 8.59 years, 117 females) completed the survey. From the analysis, three themes emerged: Challenges and Enablers of an active lifestyle, Internal and External Drivers and Mobile PA App as an ally. Key barriers included the lack of free and accessible spaces, self-motivation, time management, accurate scientific information and safe exercise prescriptions. Participants valued a free digital PA guide, with personalized exercise prescriptions (assessments and selected individual preferences) and a verified educational section featuring videos and articles. Additional desirable features included reminders to be active, scheduling tools, gamification elements to enhance engagement and goal achievement, and physiological monitoring.

These insights guided the next phase of development, leading to the creation of a personalized

exercise prescription algorithm, built upon the ACSM and WHO PA guidelines.7 The algorithm integrates scientific evidence with user-centred feedback, ensuring safe, tailored, and motivating recommendations for everyone.

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Biography of presenting author

Maria Pereira Gomes is a physiotherapist and a research fellow at the Center for Rehabilitation Research (CIR) of School of Health- Polytechnic of Porto. She holds a BSc in Physiotherapy from the University of Aveiro and is currently pursuing an MSc in Physiotherapy – Clinical Movement Assessment and Application at the School of Health Technologies of Coimbra- Polytechnic Institute of Coimbra. Her research focuses on digital health innovation, physical activity promotion, and pulmonary rehabilitation. Maria is a member of the European Respiratory Society and the Portuguese Society of Pulmonology.

Keywords : Personalised Exercise Prescription, Digital Health Inovation, User centered design research

CRIMEAN-CONGO HAEMORRHAGIC FEVER IN PORTUGAL: BRIDGING THE GAPS IN THE ONE HEALTH PUZZLE

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Abstract

The Crimean-Congo haemorrhagic fever virus (CCHFV) is an emerging tick-borne pathogen raising significant public health concerns in new geographical regions1. The first fatal human case in Portugal in 2024 highlights the potential for silent transmission and underdiagnosis, as infections can resemble other endemic tick-borne diseases, such as Mediterranean spotted fever2. Despite ongoing tick surveillance, the zoonotic cycle and the tick species involved in transmitting CCHFV remain poorly understood. These knowledge gaps emphasise the importance of adopting a One Health approach to inform effective prevention policies and public health strategies.

The One Health approach will be employed to characterise exposure to CCHFV and transmission dynamics in Portugal. The project will assess exposure among animal and human populations, including risk groups and patients with non-specific symptoms and suspected tick-borne diseases for which a definitive diagnosis has not been established. The project aims to identify the tick species involved in virus maintenance in nature and explore strategies to improve serological testing, including developing in-house diagnostic methods. The ultimate goal is to integrate all the data collected in order to develop public health guidelines and risk models for CCHFV transmission.

Ticks and biological samples from domestic and wild animals will be collected and inactivated under BSL-3 conditions before being screened for viral RNA by qRT-PCR. Positive samples will then be characterised at a molecular level and new strains/genotypes will undergo whole-genome sequencing using viral metagenomics. Serological testing of animal and human samples will also be performed to assess exposure to the virus. Epidemiological models will estimate the risk of CCHFV transmission, taking ecological and climatic factors into account.

The project will map high-risk areas, identify priority tick vector species and estimate seroprevalence

in exposed animal and human populations. This information will allow enhanced surveillance and rapid response strategies by public health authorities.

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Biography of presenting author

Inês C. Freitas enrolled on the Doctoral Programme in Planetary Health Studies in October 2025, having earned a PhD fellowship (FCT: 2025.03738.BDANA) to study the Crimean-Congo haemorrhagic fever virus using a One Health approach.

Since 2020, she has worked at the CEVDI in the National Institute Health Doutor Ricardo Jorge, specialising in disease vectors and acquiring entomological skills in ticks, mosquitoes and sandflies. Over the past two years, she has worked on arbovirus surveillance in Portugal and on innovative mosquito monitoring methodologies in the Mobile Bio-Lab to support the initial response to arbovirus outbreaks (EU_MOBVEC project).

Keywords : Crimean-Congo haemorrhagic fever, One-Health, Public health

O EMPOWERMENT DA LÍNGUA GESTUAL PORTUGUESA: A PROMOÇÃO DA LITERACIA INCLUSIVA EM SAÚDE

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1 - Departamento de Educação - Universidade de Aveiro

Abstract

Os Objetivos de Desenvolvimento Sustentável (ODS) da Agenda 2030 da ONU para a área da Saúde e Bem-Estar (ODS 3) promovem uma reflexão em torno do art. 64º da Constituição da República Portuguesa onde “todos têm direito á proteção da saúde e o dever de a defender e a promover” (nº1) proporcionando uma communicare cuja partilha dos ‘saberes’ na voz, nas mãos e no corpo fomenta a construção, em Saúde, de um Lugar Inclusivo (Ainscow, 2015).

A obra De Magistro, de Santo Agostinho (2009), salienta para a importância da linguagem e como as palavras poderão ser ‘sinais’ que partilham uma communicare de ideias. No entanto, além das palavras, destaca a importância dos gestos e ‘sinais’ visuais. Em Saúde, o Lugar assumirá uma Identidade e Interculturalidade quando a pantomina das mãos emerge valores educacionais, históricos e linguísticos próprios de uma Comunidade: a Comunidade Surda. Segundo Vieira (20011, p. 50) "a identidade constrói-se por referência á alteridade, em relação ao outro que se percepciona e nos dá a imagem de nós mesmos". Por conseguinte, um Etnos Surdo que em alteridade, entre o silêncio e o gesto, nasce a voz Surda – a Língua Gestual Portuguesa (LGP). Assim, as metamorfoses emergentes na padronização cultural da Diferença (Wieviorka, 2002) convida-nos á (re)construção do Lugar onde a LGP enquanto Língua Materna (L1) promove etnografia para a Inclusão no Lugar nas ‘Novas Fronteiras em Saúde’.

Este estudo inserido na frequência do Doutoramento em Educação, ramo Diversidade e Educação Inclusiva (D&EI), na Universidade de Aveiro, vem trazer a debate os desafios da D&EI (Mittler, 2023) em torno do Dec. Lei 54/2018, 06 de julho e o empowerment da LGP perante o Desenho Universal para a Aprendizagem (DUA) para, em Equidade, se possa garantir efetividade na Literacia Inclusiva em Saúde no ODS 3.

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Biography of presenting author

Doutorando em Educação no ramo Diversidade e Educação Inclusiva e Docente no Departamento de Línguas e Culturas na Universidade de Aveiro e outras Instituições de Ensino Superior. É Advogado Surdo e pós-graduado em Direitos Humanos e Democratização pela Universidade de Coimbra e o seu trabalho tem-se pautado na defesa da inclusão e na relação de alteridade cuja construção identitária do Eu e do outro seja tido em recortes múltiplos assentes na Diferença e de valores socialmente aceites na prossecução da Saúde e Bem-Estar e por conseguinte, uma 'Deaf awareness' integrante numa Comunidade histórica, cultural e linguística: a Comunidade Surda.

Keywords : Língua Gestual Portuguesa; Inclusão; Saúde.

REGULATORY CLASSIFICATION OF ADVANCED THERAPY MEDICINAL PRODUCTS: INSIGHTS FROM A SPINAL CORD INJURY STUDY

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This work explores the European regulatory framework determining the classification of Advanced Therapy Medicinal Products (ATMPs), with a particular focus on their application in Spinal Cord Injury (SCI). Given that SCI continues to represent a major therapeutic challenge with no approved treatments in Europe, a clear understanding of how ATMPs are categorized, especially when they involve biological, physical, and pharmacological mechanisms, is of crucial importance. The exercise analyses common difficulties faced in ATMP regulatory assessments, such as uncertainties in preclinical data requirements and the lack of robust clinical evidence. These issues are illustrated through a practical example: the classification of ATMP 1394UA, a hydrogel derived from amniotic membrane extracellular matrix (ECM), designed to be used in combination with induced Neural Stem Cells (iNSCs) for SCI regeneration. The case exemplifies how early and accurate classification decisions can shape development strategies, regulatory alignment, and eventual Market Authorization (MA). By clarifying the nuances of ATMP categorization, this work aims to inform scientists, developers, and regulators on key strategic aspects relevant to advancing ATMP-based interventions for spinal cord repair.

Acknowledgments
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Keywords : advanced therapy medicinal products, regulatory challenges, spinal cord injury

WHAT ARE THE BEST PLACES ON THE PLANET TO HAVE A HAPPY AND LONG LIFE?

Vitor Coutinho (Portugal)1

1 - DCM - UA

Introduction: Human lifespan has increased in recent years, influenced by genetic factors, lifestyles, health determinants, cultural factors, environmental determinants, etc. In fact, human happiness is a dynamic state of well-being of physical and mental balance, of harmony between relationships and activities, whose definitions vary between philosophy, psychology and religion. Thus, it is fundamental to understand whether the place where we live is a determinant of a long and happy life.

Methodology: A search was conducted in the MEDLINE/ PUBMED database for scientific articles from the last 10 years (2015-2025), using the PubMed keywords: “longevity”, “happiness”, “high quality of life”, “long life”, “blue zones”. 63 scientific articles were identified and 24 were selected.

Results and discussion: The best places in the world for a longer and happier life include Blue Zones known for longevity such as Okinawa (Japan),Sardinia (Italy), Ikaria (Greece), Nicoya (Costa Rica) and Loma Linda (California); as well as cities with high quality of life and happiness such as Vienna (Austria), Copenhagen (Denmark) and Zurich (Switzerland), Melbourne, (Australia) and Nordic countries (ex. Finland, Denmark, Iceland, Sweden, and Norway). So, longevity and happiness in these places are influenced by factors such as a healthy diet, regular physical exercise, a strong sense of community, purpose in life, positive mental health; as well by culture, environment, education and health´s infrastructures.

In fact, there are common factors among places that promote a long and happy life, sharing several characteristics: robust Healthcare Systems, Social Support and Community; active Lifestyle and Healthy Diet; Equality and Stability; Work-Life Balance.

Conclusion: The existence of a long and happy life depends on the intrinsic capacity of the individual, its multiple facets; but the place where they live and the circumstances that surround them must also be considered.

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Vítor Manuel de Sousa Leite Cibrão Coutinho is graduated in Medicine (FMUC - Coimbra) and is a specialist in General and Family Medicine (MGF) and has postgraduate degrees in Hydrology and Medical Climatology, in Occupational Medicine, in Health Services Management and an International Clinical Course in Geriatrics; and PHD (April 14, 2023) from the Faculty of Medicine of the University of Santiago de Compostela (Spain). Currently, since February 2018, he has been a lecturer at University of Aveiro (DCM) and performing the functions of a doctor and Coordinator of the USF “Flor de Sal” (Aveiro) – ULSRA (Aveiro).

Keywords : "longevity”, “happiness”, “blue zones