Irish Society for Rheumatology

Autumn Meeting

30 Sept - 1 Oct 2021

Welcome Message from the ISR President Prof Geraldine McCarthy

Dear Guests, Colleagues and Friends

It is my pleasure to welcome you all to what I hope will be the last ever completely virtual ISR meeting. Life has improved generally since our last meeting and we understand a lot more about COVID now than we did at the start of the pandemic. The uptake of vaccination in Ireland has served us well.

Professors Ronan Mullan and David Kane from Tallaght University Hospital have put together a superb and varied program for the 2021 Autumn Meeting with an international panel of speakers from Europe, USA and New Zealand.

On Thursday September 30th, day 1 of the meeting, Professor Kimme Hyrich will talk about the COVID-19 Global Rheumatology Alliance to which many ISR members have contributed. Professor Andrew Cope will inform us about musculoskeletal inflammatory syndromes associated with immune checkpoint inhibitor therapy for cancer. Professor Kevin Winthrop will discuss what we have learned about infection and autoimmune disease in recent times. Dr Suzanne O'Sullivan has recently published a book entitled The Sleeping Beauties which is about functional neurological disorders and mass psychogenic illness and it has been praised by many reviewers including Katy Guest from The Guardian. Her talk promises to be fascinating.

On Friday October 1st, Professor Nicola Dalbeth will bring us up to date on best practice in gout management. Professor Oliver Distler will discuss the challenging topic of scleroderma and interstitial lung disease. Professor Alida Caforio will speak about myocardial involvement in systemic immunemediated diseases. Finally we will hear from Mr James Dixon about the climate emergency which is truly terrifying and is indeed a health emergency. All presentations will be available on the ISR website following the meeting for those who would like to attend again or who may have missed out. The extra effort it has taken for our speakers to prepare their presentations in advance is much appreciated.

We look forward to hearing from our local talent during the oral and poster presentations.

I would like to offer special thanks to Michael Dineen and Marie Caston who have worked extremely hard to make this meeting a success, despite all the ongoing challenges.

I am especially grateful to our colleagues in the Pharmaceutical Industry for the continued support of ISR and its members, especially during these difficult times.

Finally, my sincere thanks to the members of ISR board for all their support in 2021.

Enjoy the meeting

Prof Geraldine McCarthy
President ISR

ISR Autumn Meeting

Thursday 30 September - Friday 1 October 2021

Virtual Programme

Thursday, 30 September

14.00 **Clinical Advisory Group Meeting** (1 hour)

15.00 **Industrial Videos**

15.15 **Opening Address**
Prof Geraldine McCarthy, President ISR

15.15 **Prof Kimme Hyrich**
Professor of Epidemiology
Centre for Musculoskeletal Research, The University of Manchester
and Manchester University NHS Trust
"COVID-19 and Rheumatology:
Lessons learned from an international database"

15.45 **Young Investigator Award**
Top Abstract Submission as decided by the Abstract Review Panel

16.05 **Prof Gaye Cunnane**
Consultant Rheumatologist, St James's Hospital, Dublin
"Standing on the Shoulders of Giants"

16.20 **Industrial Videos**

16.30 **Prof Andrew Cope**
Versus Arthritis Professor of Rheumatology, and Head, Centre for Rheumatic Diseases,
King's College, London
"The emerging spectrum of musculoskeletal inflammatory syndromes associated with immune checkpoint inhibitor therapy for cancer"

17.00 **Prof Kevin Winthrop**
Professor of Infectious Diseases and Ophthalmology at the School of Medicine
Portland Oregon. USA
"Infection, Autoimmune disease and 2020 – what we have learned"

17.30 **Top 8 Premier Posters** (8 by 4 mins)

18.00 **Dr Suzanne O'Sullivan**
Neurologist, University College London Hospitals
"It's All in Your Head"

Friday, 1 October

09.15 **Industrial Videos**

09.30 **Prof Nicola Dalbeth**
Professor of Rheumatology, University of Auckland, NZ
"What's New in Gout Management"

10.00 **Prof Oliver Distler**
Head of Dept of Rheumatology University Hospital Zurich. Switzerland
"Treatment Strategies in SSc – ILD"

10.30 **Industrial Videos**

10.45 **Oral Scientific** (basic science & Clinical Science Mix) papers [6]

11.45 **Prof Alida Caforio**
Prof of Cardiology, Dept of Cardiac Thoracic Vascular Sciences and Public Health University of Padova, Italy
"Myocardial involvement in systemic immune-mediated diseases"

12.15 **Industrial Videos**

12.30 **James Dixon** CEnv FIEMA FRSA
Associate Director – Sustainability The Newcastle upon Tyne Hospitals NHS Foundation Trust
"First Do No Harm – The Climate Emergency is a Health Emergency"

The Irish Society of Rheumatology are delighted to welcome James Dixon, James Dixon CEnv FIEMA FRSA, Associate Director – Sustainability at The Newcastle upon Tyne Hospitals NHS Foundation Trust. James will deliver his keynote address on the implementation of sustainable healthcare strategies both leading up to and following the declaration of a Climate Emergency by the Trust in 2019. We share his vision that the future of healthcare delivery requires robust and sustainable action. In collaboration with the ISR executive committee, James's key note address will be simultaneously transmitted throughout the HSE.

Prior to the lecture, we will also share with you a short promotional video produced by an All Island Climate Action Group, "Bugs Bees and Native Trees".

Bugs Bees and Native Trees is the brainchild of Dr David Mulcahy, Consultant Cardiologist at Tallaght University Hospital. The Directors are Dr David Mulcahy, Professor Ronan Mullan, Professor Rose Anne Kenny, Mr Jerry Sheehan and Mr Brian McMahon. The mission of the group is to activate young people across the Island of Ireland to address climate change through tree planting and other environmental projects. Over the past 6 months we have been working with schools, churches, civic organisations and private landowners to plant native trees across the island under our banner. To date, with over 80,000 trees in the ground, our target of 100,000 trees is now within reach. We've also established an apiary on the TUH campus and are about to launch our inaugural Bugs Bees and Native Trees - TUH Honey.

You can view our website and our All Island Map of current projects and learn more about us at https://bugsbeesandnativetrees.com/projects/ . Please contact us if you'd like to donate, or if you'd like to register an interest in a native tree planting project of your own.

13.30 **Prizes, Ending Statements and Thanks.**

Biographical Sketches

Speakers

Prof. Alida L P Caforio
MD, PhD, FESC

Education:- Medicine and Surgery Degree (honours), Pisa University, 1984; Specialist Diploma (honours) in Cardiology, Pisa University, 1987; Ph.D. in the Faculty of Medicine (field: Cardiovascular Immunology), St. George's Hospital Medical School, University of London, 1992. Prizes: - Allievo Sezione di Medicina,Scuola Superiore S. Anna,Pisa 1984; - Perfezionando Sezione di Medicina,Scuola Superiore S. Anna,Pisa 1987; - British Heart Foundation Research Fellowship, 1991; - Research Fellowship, Italian Ministry for University and Scientific Research, 1991; - European Society of Cardiology (ESC) Research Fellowship 1992; - National Research Council target project "FAT.MA" Research Fellow (Rome,Italy),1993; - The Attilio Reale Prize in Basic Cardiology 1996; - "Scholar in Cardiology" Italian Society of Cardiology, 2003; - ESC-Fellow, 1995.

Posts held: - Research Fellow/Honorary Registrar Cardiovascular Research Unit (Prof. A. Maseri), Royal Postgraduate Medical School, University of London, 1986-88; - ResearchRegistrar Dept. of Cardiological Sciences (Prof WJ McKenna), St. George's Hospital Medical School, University of London, 1988-92; - Honorary Lecturer Department of Cardiological Sciences, St. George's Hospital Medical School, University of London 1992-98; Consultant cardiologist and Hon Assistant Professor in Cardiology, University of Padova-Azienda ospedaliera di Padova,1999-2018. Associate Professor in Cardiology, Dept of Cardiac Thoracic Vascular Sciences and Public Health, University of Padova-current. Fulfilled National Scientific requirements for Full Professor in Cardiology.

Prof. Gaye Cunnane

Gaye Cunnane, PhD, MB, FRCPI, is a Professor of Rheumatology at Trinity College Dublin and a Consultant Rheumatologist at St James's Hospital.
She is also the Director of Health and Wellbeing at the Royal College of Physicians of Ireland. Previous roles have included National Specialty Director for Rheumatology, Regional Programme Director for Basic Specialist Training, Director of Post-graduate Education at St James's Hospital and she is a past-President of the Irish Society for Rheumatology.

Prof. Andrew Cope

Andrew Cope graduated in Medicine from the University of London with First Class Honours. After training in general internal medicine at Northwick Park Hospital, The National Hospital for Nervous Diseases and the Royal Brompton Hospital, he trained in rheumatology with Professor Sir Ravinder Maini and Dr. Barbara Ansell CBE. In 1990, he was awarded a Wellcome Trust Clinical Training Fellowship, studying for a PhD in Cytokine Biology with Professor Sir Marc Feldmann at the Kennedy Institute of Rheumatology. Following a postdoctoral fellowship with Professor Hugh McDevitt at Stanford University, California, studying transgenic models of autoimmunity, he returned to the Kennedy Institute to set up his own laboratory. In 2005 Andrew Cope was appointed Reader in Molecular Medicine at the Kennedy Institute of Rheumatology, and in 2008 was recruited to the Arthritis Research UK Chair in Rheumatology at King's College London, and is currently Head of the Centre for Rheumatic Diseases at King's. The Cope lab is housed in the Centre for Inflammation Biology and Cancer Immunology (CIBCI) on the Guy's Campus, Faculty of Life Sciences and Medicine, King's College London. Research focuses on two key themes: defining aberrant pathways of T cell activation and differentiation in the context of chronic inflammatory diseases, such as rheumatoid arthritis; understanding how allelic variants of immunologically important genes contribute to autoimmune disease pathogenesis. His clinical research interests revolve around aspects of inflammatory arthritis, including very early inflammatory arthritis and disease remission states. He is currently Chief Investigator of the RA prevention trial – the APIPPRA study. Prof Cope joined the Board of Trustees of the Kennedy Trust for Rheumatology Research in 2015, where he chairs the Research Sub-Committee. In 2021, after being nominated by the British Society for Rheumatology, he was elected to the EULAR Research Committee, on which he chairs the Clinical Research Sub-Committee.

Dr Suzanne O'Sullivan

Suzanne O'Sullivan, a Trinity College Dublin graduate, is a consultant neurologist and clinical neurophysiologist at the National Hospital for Neurology and Neurosurgery in London. She runs a service for people with epilepsy.
She is also a writer. Her first book *It's All in Your Head* won the 2016 Wellcome Book Prize and the Royal Society of Biology general book prize. It tells the story of people with psychosomatic disorders. She has since published Brainstorm, Detective Stories from the World of Neurology, released to great critical acclaim in 2018. Her latest book *The Sleeping Beauties* was inspired by a poignant encounter with sleeping refugee children of Sweden and sees her travel the world, visiting communities caught up in outbreaks of mass hysteria.

Prof. Nicola Dalbeth

Nicola Dalbeth is a Specialist Rheumatologist and Professor of Medicine from Tamaki Makaurau/Auckland, Aotearoa/New Zealand. She leads a research programme focusing on the mechanisms, impact, and treatment of gout. She has been principal investigator of trials for new therapeutic agents and treatment strategies in gout, and has led international initiatives to define nomenclature, staging, and response to treatment. She was a member of the core oversight team for the 2020 American College of Rheumatology (ACR) Gout Management Guidelines, and a steering committee member on the 2015 ACR/European League Against Rheumatism gout classification project.

James Dixon
FIEMA FRSA CEnv
Associate Director - Sustainability at Newcastle Hospitals, UK

James is a Chartered Environmentalist with twenty years' environmental sustainability experience. This has ranged from working at Newcastle City Council implementing Environmental Management Systems (ISO 14001 & EMAS), helping contribute to Newcastle being awarded UK's Greenest City two years running by Forum for the Future, to establishing the sector leading Sustainable Healthcare in Newcastle (Shine) programme at Newcastle Hospitals culminating in them becoming the first healthcare organisation in the world to publicly declare a climate emergency, and commit to fast-tracking decarbonisation of their services.
As well as his role at Newcastle Hospitals, James is the Sustainability Lead for the North East & North Cumbria Integrated Care System, Chair of the Shelford Group of NHS Sustainability Leads and Vice Chairman of the Board at Health Care Without Harm Europe. James also holds Fellowship positions at the Institute of Environmental Management & Assessment (FIEMA) and the Royal Society for Arts (FRSA).

Prof. Kimme Hyrich

Professor of Epidemiology, UK Centre for Epidemiology Versus Arthritis
Consultant Rheumatologist, Kellgren Centre for Rheumatology at Manchester University NHS Foundation trust

Professor Hyrich completed her Bachelor of Science and Medical degree at the University of Manitoba in Canada. Following this, she trained in Internal Medicine in Winnipeg, Canada and completed a Fellowship in Rheumatology at the University of Toronto. She was awarded her PhD in 2005 whilst working as a CIHR Research Fellow at the then Arthritis Research UK Epidemiology Unit in Manchester. She is Professor of Epidemiology at the University of Manchester and an Honorary Rheumatology Consultant at Manchester University NHS Foundation Trust.
Her main research interests center on outcomes in inflammatory arthritis in adults and children, with a focus on pharmacoepidemiology. Professor Hyrich is the chief investigator for the British Society for Rheumatology Biologics Register for Rheumatoid Arthritis as well as the UK JIA Biologics Register. Professor Hyrich was instrumental in the collaboration of the global COVID-19 registers for patients with rheumatic disease.

Dr Kevin Winthrop

Oregon Health & Science University, Portland, OR, USA

Kevin L. Winthrop is a Professor of Public Health at the Oregon Health & Science University-Portland State University School of Public Health (OHSU-PSU SPH), and a Professor of Infectious Diseases and Ophthalmology at the School of Medicine at Oregon Health & Science University in Portland, OR, USA.
Dr. Winthrop received his undergraduate degree in biology from Yale University, New Haven, CT, USA and his MD from OHSU. He completed his internal medicine residency training at Legacy Emanuel Hospital, Portland, OR. He completed an infectious disease epidemiology fellowship at the US Centers for Disease Control and Prevention. In 2003, Dr. Winthrop was conferred a Master in Public Health from the University of California, Berkley, CA, USA. In 2006, Dr. Winthrop returned to OHSU as Assistant Professor before progressing to his current appointment in 2018.
A former infectious disease epidemiologist in the Division of Tuberculosis Elimination at the US Centers for Disease Control and Prevention (CDC), Dr. Winthrop has co-authored over 300 publications, many regarding the epidemiologic and clinical aspects of opportunistic infections associated with immune-mediated inflammatory diseases, particularly those related to biologic immunosuppressive therapies.
As a primary or senior investigator in many clinical or epidemiologic studies in these fields, he has collaborated closely with the rheumatology community in the evaluation and prevention of opportunistic infections in that setting. In addition, he is also member of the graduate faculty at OHSU where he mentors public health students, medical students, and physicians in post-graduate training. At OHSU, he directs a national referral center for chronic chest infections, and he serves as the medical consultant to the State of Oregon's Tuberculosis control program.

Prof. Dr Oliver Distler, MD

Oliver Distler is Professor of Rheumatology and Chairman of the Department of Rheumatology at the University of Zurich. He is also heading the Center of Experimental Rheumatology of the University of Zurich. The Department of Rheumatology has been awarded a EULAR Center of Excellence in 2020 due to its scientific achievements. With over 300 primary research papers, over 23'777 citations and an H-Factor of 77, he is among the top 3 cited researchers worldwide in the field of systemic sclerosis. His research activities span from a preclinical program focusing on the characterization of key molecules and intracellular signaling cascades driving the disease process to a translational and clinical program with emphasis on precision medicine and phase 2/3 clinical trial design.

ISR Board members

Professor Geraldine McCarthy
President
Consultant Rheumatologist
Mater Misericordiae University Hospital Dublin and Full Clinical Professor of Medicine University College Dublin

Geraldine McCarthy graduated in Medicine from NUI. She received her Fellowship in Rheumatology at the Medical College of Wisconsin. Her research has focused on the biological effects of calcium-containing crystals in degenerative joint disease as well as in atherosclerosis and breast cancer. Promoted to Associate Professor of Medicine at the Medical College of Wisconsin in 1996 where she remained until her return to Dublin.
Prof McCarthy was appointed Consultant in Rheumatology at the MMUH and Cappagh National Orthopedic Hospital Dublin in 1999 where she continues to run a busy clinical practice. She teaches as part of the University College Dublin Faculty of Medicine where she was the first clinician to be appointed Full Clinical Professor of Medicine through the Clinical Pathways in 2009.
Geraldine has current international collaborations in the UK, USA, Europe, Australia, New Zealand and Canada, particularly in relation to calcium crystal deposition diseases as well as gout. She continues her involvement in bench research related to the pathogenesis of basic calcium phosphate crystal–induced joint disease and participates in and contributes to numerous international collaborations related to gout. Other research interests include platelet activation in inflammatory arthritis and its role in enhanced cardiovascular risk. She also participates in collaborative studies of the pathogenesis of giant cell arteritis and HIV-associated bone pathology.
Author of over 130 publications, including original manuscripts, editorials, reviews and book chapters and has spoken at many national and international meetings. She has been winner of several research and teaching awards and has mentored many medicine and science graduates in clinical practice and in research.

Dr Claire Sheehy
Honorary Secretary
Consultant Rheumatologist
University Hospital Waterford

Dr Claire Sheehy is a Consultant Rheumatologist in University Hospital Waterford. A graduate of Trinity College Dublin, she completed the higher specialist training in rheumatology and general medicine, and was awarded an MD for work exploring the role of anti TNF therapy in early rheumatoid arthritis. She undertook a fellowship in connective tissue disease and vasculitis between Norfolk and Norwich University Hospital, and Addenbrookes Hospital. She took up her post in 2012; her current clinical interests include early inflammatory arthritis and connective tissue disease.

Dr Shawn Chavrimootoo
Honorary Treasurer
Consultant Rheumatologist,
Our Lady's Hospital,
Navan, Co Meath.

Shawn Chavrimootoo is a Consultant Rheumatologist at Our Lady's Hospital, Navan, Co. Meath. He graduated in Medicine from RCSI, Dublin in 2002 and developed an interest in Rheumatology during his Senior House Officer years in Connolly Hospital, Blanchardstown. Following this, he completed higher specialist training in Cork University Hospital, Kerry General Hospital, Connolly Hospital and St Vincent's University Hospital in Dublin. He was appointed to his Consultant Rheumatologist post in 2013 when he joined Dr Ramakrishnan at Our Lady's Hospital, Navan, from where they currently provide a regional Rheumatology service for the North East of Ireland. His clinical interests include osteoporosis as well as gout, inflammatory arthritis, spondyloarthritis, connective tissue disease and vasculitis.

Dr Nicola Ambrose
Consultant Rheumatologist,
Blackrock Clinic, Co Dublin

Dr Nicola Ambrose is a graduate of Trinity College Dublin. She completed her specialist training in rheumatology and general internal medicine in Ireland, before obtaining an Arthritis Research UK (ARUK) fellowship to undertake a PhD at Imperial College London, studying inflammation in Behçet's Syndrome. She then obtained a Richard Steeven Fellowship from the HSE to undertake a Clinical Fellowship at the ARUK Adolescent Rheumatology Centre of Excellence at University College London Hospital (UCLH). She stayed at UCLH as an Adolescent and Adult consultant rheumatologist, and was the Clinical Lead for Adolescent Rheumatology. Special interests: Adolescent and Young Adult Rheumatology including JIA; Behçet's Syndrome; SLE and dermatomyositis; Gout Osteoporosis and fracture secondary prevention; Inflammatory arthritis.
She has published 23 peer review papers as well as 6 book chapters.

Dr Andrew Cairns
Consultant Rheumatologist,
Musgrave Park Hospital, Belfast

Dr Andrew Cairns graduated in Medicine from Queen's University Belfast in 1995. He completed specialist training in Belfast and also at the Rheumatic Diseases Unit in Edinburgh. He was awarded an MD by thesis entitled "Leucocyte surface receptor expression of relevance to apoptotic cell clearance in systemic lupus erythematosus" from Queen's University Belfast in 2001, and an MSc in Sport and Exercise Medicine from the University of Ulster in 2008. He is a Consultant Rheumatologist at Musgrave Park Hospital Belfast where he was appointed in 2004, and also provides rheumatology clinics at Belfast City Hospital and Lagan Valley Hospital Lisburn. He is a Fellow of the Royal Colleges of Physicians of Ireland, London and Edinburgh. He has published in a wide range of rheumatic diseases and is an enthusiastic proponent of musculoskeletal ultrasound.

Professor Ursula Fearon
Head of Molecular Rheumatology,
School of Medicine,
Trinity Biomedical Sciences Institute,
Trinity College Dublin.

Professor Ursula Fearon is head of Molecular Rheumatology, School of Medicine, Trinity Biomedical Sciences Institute, Trinity College Dublin. Professor Fearon's research is a bench-to-beside translational approach, focusing on understanding the underlying mechanisms that drive disease pathogenesis; her team specifically examine components of joint inflammation at a cellular and molecular level to dissect out the signalling and gene pathways that are involved in the pathogenesis of inflammatory arthritis and rheumatic diseases. She has established strong collaborative research networks across Europe, USA and Singapore. Professor Fearon, has been awarded significant research funding from Arthritis-Ireland, Health Research Board, Science Foundation Ireland, IRCSET, European-ASPIRE, JU Innovative Medicines Initiative (IMI) and Maeve Binchy Funding for Arthritis Research, in addition to industry collaborative partnerships. She has published extensively in high impact peer-reviewed journals, and her research has been awarded several National/International awards.

Dr Colm Kirby
Cork University Hospital, Cork

Colm graduated with a degree in medicine from UCC in 2011. Following completion of CUH medical BST I commenced the Rheumatology HST in 2016. After spending some time University College Hospital Galway and Cork University Hospital, he now works in Tallaght University Hospital. Special interests include Musculoskeletal Ultrasound and premature atherosclerosis associated with systemic inflammatory diseases.

Professor David Kane
National Lead for Rheumatology
HSE Clinical Programme
Consultant Rheumatologist,
Tallaght University Hospital, Dublin

Prof David Kane attended medical school at Trinity College, Dublin, Ireland and was conferred MB BCh BAO BA in 1991, PhD in 2002 and FRCPI in 2006. He has trained in rheumatology with Prof. Barry Bresnihan and Prof. Oliver FitzGerald at St. Vincent's University Hospital, Dublin, Ireland and with Prof Roger Sturrock, Prof Iain McInnes and Dr Peter Balint at Glasgow Royal Infirmary, Glasgow, United Kingdom. He was appointed as Senior Lecturer in Rheumatology at the University of Newcastle (2003-2005) and is currently working as Consultant Rheumatologist at the Adelaide and Meath Hospital and Clinical Professor in Rheumatology at Trinity College Dublin. His special interests are musculoskeletal ultrasound, spondyloarthopathy and synovial inflammation. He is a member of the European Working Party on Musculoskeletal Ultrasound and the OMERACT special interest group on musculoskeletal ultrasound, previous organiser of the BSR Musculoskeletal Ultrasound course and is Faculty member of the EULAR Musculoskeletal ultrasound course. He has served as a Board member of the Irish Osteoporosis Society, as President and Treasurer of the Irish Society for Rheumatology and is currently a Board member of Arthritis Ireland.

Dr Bernadette Lynch
Consultant Rheumatologist,
University Hospital, Galway.

Dr Bernadette Lynch graduated from the Royal College of Surgeons in Ireland in 2003. She completed her higher specialist training in Rheumatology and General Medicine in 2013 having worked and studied in Dublin, Galway and London. She was awarded an MD from University College Dublin in 2011 for work on IL-22 and musculoskeletal ultrasound in Inflammatory Arthritis. She undertook a fellowship in Scleroderma and Vasculitis at the Royal Free Hospital Hampstead under Professor Chris Denton and Dr Aine Burns. During this time, Bernadette was part of the UK Scleroderma Study Group (UKSSG) which developed the national guidelines on the management of complications of Scleroderma. She took up her current appointment as Consultant Rheumatologist and General Physician in University Hospital Galway in 2015. Her principal clinical and academic interests are Scleroderma and Inflammatory Arthritis.

Dr John Ryan
Consultant Rheumatologist,
Cork University Hospital, Cork

Dr John Ryan is a graduate of the Royal College of Surgeons in Ireland, he completed his higher medical training in rheumatology and general internal medicine in Ireland. He undertook a fellowship at the National Institute of Arthritis and Musculoskeletal and Skin Diseases (NIAMS) in Bethesda, Maryland. During this time he undertook translational research into disordered innate immunity manifesting as recurrent fever syndromes. He joined Dr Sinead Harney in the Rheumatology service at Cork University Hospital in 2010. The Rheumatology department has since expanded to include Dr Grainne Murphy. In July 2017 he took up the post of National Specialty Director for Rheumatology.

Dr Emma Jane MacDermott
Consultant Paediatric Rheumatologist,
CHI Crumlin

Emma Jane MacDermott, is a Consultant Paediatric Rheumatologist in CHI Crumlin where she joined the team in 2012 and has helped oversee the ongoing growth and development of the paediatric rheumatology department into a dynamic national service, now including a growing research and education component. With a special interest in education she enjoys working with patients, parents and medical providers to raise the profile and understanding of rheumatologic disease. She works with the national advocacy groups continuing to raise the profile for Irish paediatric rheumatology patients. Areas of interest include Juvenile arthritis, Paediatric Lupus and autoinflammatory disease.
A graduate of University of Dublin, Trinity College Medical School she pursued her post graduate training in paediatrics, becoming a member of the Royal College of Physicians in 2001. She subsequently moved to New York, where she completed a fellowship in Paediatric Rheumatology, from Weill Cornell Medical School, working at Hospital for Special Surgery and the Cornell Campus of New York Presbyterian Hospital as Assistant Attending in Paediatric Rheumatology at Hospital for Special Surgery and Assistant Professor of Paediatrics at Weill Cornell Medical School until her return to Ireland in 2012.
Emma is a member of the Royal College of Physicians of Ireland, the American College of Rheumatology, the Irish Rheumatology Society, the British Society of Adolescent and Pediatric rheumatology.

Dr Clare Matthews
Consultant Rheumatologist
Ulster Hospital, Belfast

Consultant Rheumatologist, Ulster Hospital, Belfast Dr Clare Matthews graduated from Queens University Belfast in 1994. She completed registrar training with CCT in Rheumatology and general medicine in 2007. She completed an MD "Clinical, genetic and immunohistochemical findings of early inflammatory arthritis" from The Queen's University, Belfast in 2004. She trained in Belfast with a period of training in St Vincent's University Hospital Dublin through her research interest in synovial disease. Dr Matthews was first appointed as a consultant in Belfast City Hospital and moved to her current post in The South Eastern Trust in 2009.

Dr Bryan Whelan
Consultant Rheumatologist
Our Lady's Hospital, Manorhmailton,
Co Leitrim

Dr Bryan Whelan is a Consultant Rheumatologist in Our Lady's Hospital in Manorhmailton, Co Leitrim and an Honourary Senior Lecturer in Medicine in NUIG. He qualified from UCD in 2000 and completed BST in the Mater Hospital in Dublin. He completed SpR training in Rheumatology in CUH, the Mater Hospital and University College London. He has an MD and Masters Sports and Exercise Medicine from UCC and an MSc in Epidemiology from the London School of Hygiene and Tropical Medicine. He is currently a board member of Arthritis Ireland, the SUH Research and Education Foundation, a member of the Academic Committee of the FSEM and a member of the Advisory Committee for Human Medicines Clinical Trials Subcommittee of the HPRA. His current research interests include muscle disease, exercise in rheumatology and osteoarthritis.

ISR Presidents

Prof Geraldine McCarthy 2020 - Dublin

Dr Sinéad Harney 2018 - 2020 Cork

Dr Sandy Fraser 2016 - 2018 Limerick

Prof D. Kane 2014 - 2016 Dublin

Dr G.Wright 2012 - 2014 Belfast

Prof Gaye Cunnane 2010 - 2012 Dublin

Dr R. Kavanagh 2008 - 2010 Galway

Dr J. Lee 2006 - 2008 Craigavon

Dr P. O'Connell 2004 - 2006 Dublin

Prof O. FitzGerald 2002 - 2004 Dublin

Dr A. Taggart 2000 - 2002 Belfast

Dr D. Raman 1998 - 2000 Sligo

Dr A. Bell 1996 - 1998 Belfast

Prof B. Bresnihan 1994 - 1996 Dublin

Prof M. Molloy 1992 - 1994 Dublin

Dr E. Casey 1990 - 1992 Dublin

Dr S. Roberts 1988 - 1990 Belfast

Dr C. Barry 1985 - 1987 Dublin

Dr D. Roden 1983 - 1985 Dublin

Dr W. Boyd 1981 - 1983 Belfast

Dr T. Gregg 1979 - 1981 Dublin

Dr J. Molony 1977 - 1979 Dublin

Dr M .McMahon 1975 - 1977 Cork

Dr T.O'Reilly 1973 - 1975 Dublin

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Consultant Rheumatologist
Mater Misericordiae University Hospital Dublin
and Full Clinical Professor of Medicine
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Dr John Ryan
Consultant Rheumatologist,
Cork University Hospital, Cork

Dr Bryan Whelan
Consultant Rheumatologist
Our Lady's Hospital, Manorhmailton,
Co Leitrim

RPIF Update

Establishing Ultrasound as the 1st line diagnostic and monitoring test for Giant Cell Arteritis

Since receiving the RPIF bursary, our Rapid-Access GCA service has expanded substantially. Now active in both Cork University Hospital and Tallaght University Hospital, we have assessed 126 patients with suspected GCA in the past 12 months alone. We estimate that as much as €500,000 has been saved through admission-avoidance. We hope to publish our research on this cohort soon.

Dr Grainne Murphy/Dr Colm Kirby

Gender Differences in Axial Spondyloarthritis: an in-depth analysis of disease activity, function and co-morbidities using the Ankylosing Spondylitis Registry of Ireland (ASRI)

Thanks to funding received via the RPIF bursary, recruitment in the ASRI has continued across multiple hospitals with an emphasis on recruiting women with axial spondyloarthropathy (axSpA). Data collection of pregnancy outcomes in axSpA has also progressed during this time, providing further insights on pregnancy complications in Irish women with axSpA. The wealth of data from the ASRI has resulted in numerous abstracts at international meetings including ACR, BSR, EULAR and SPARTAAN over the past year. Our project examining the reporting of disease activity in axSpA between genders, received considerable attention as it was selected for oral presentations at both the BSR and EULAR annual meetings in 2021. The ASRI research funded by the RPIF has provided valuable insights into numerous aspects of axSpA including: gender specific patterns of disease, frequency of pregnancy complications, as well as the impact of depression and unemployment on disease activity.

Dr Barry O'Shea/Dr Sinead Maguire

Remote Early Identification of Disease Progression in Connective Tissue Disease related Interstitial Lung Disease (CTD-ILD) using Digital Patient Empowered Monitoring (REIDD Study)

Many thanks for the support and the RPIF funding from UCB and ISR. Interstitial lung disease is an increasingly recognised complication of connective tissue diseases. A clinical cohort comprising patients with CTD-ILD and IPF as a comparative control have been identified and will be recruited to investigate physiological, genetic, serum and clinical biomarkers that may identify rapidly progressing fibrosing interstitial lung disease. The control group which have started the study are being remotely monitored and the CTD ILD group are being recruited. We hope to present our findings at next year's meeting.

Dr Laura Durcan/Dr Wan Lin Ng

ISR is extremely grateful to UCB for the funding received which enabled this project during the past 4 years

Young Investigator Award 2021

Dr Rachael Flood

Rachael graduated from Trinity College Dublin in 2013 and is currently in the 4th year of Rheumatology Specialist Registrar Training. She is currently investigating the pathological associations of hyperuricaemia in sub-clinical gout, cardiovascular and cardiopulmonary diseases under the supervision of Professor Ronan Mullan at Tallaght University Hospital. Rachael's research interests are in crystal arthropathies, metabolic syndrome, musculoskeletal ultrasound and COVID-19 outcomes in patients with Rheumatic diseases. She was awarded The Meath Foundation Research Fellowship in 2018 and 2020 and the Pfizer Research Fellowship in 2020. This is the second year in a row that Rachael has won this award.

URATE-LOWERING THERAPY REDUCES NON-EPISODIC FOOT PAIN IN PATIENTS WHO FAIL TO MEET ACR/EULAR 2015 GOUT CLASSIFICATION CRITERIA: AN EFFECT PREDICTED BY ULTRASOUND.

Author(s)
Rachael Flood, Colm Kirby, Yousef Alammari, David Kane, Ronan Mullan.

Department(s)/Institutions
Tallaght University Hospital, Department of Rheumatology.

Introduction
Emerging evidence that joints of asymptomatic hyperuricaemic individuals contain monosodium urate (MSU) deposits and that alternative presentations of foot pain occur in hyperuricaemia suggests that preclinical phases may occur prior to a first episodic gout attack.

Aims/Background
This case–control study evaluates urate deposition in hyperuricaemic individuals not fulfilling the ACR/EULAR 2015 gout classification criteria, as well as a potential therapeutic role for urate lowering therapy (ULT).

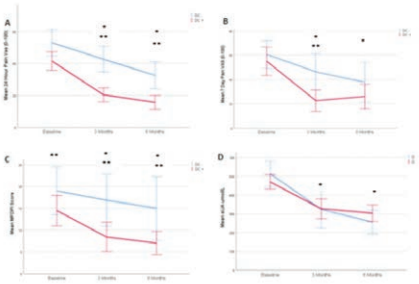
Method
Following consent, hyperuricaemic individuals with persistent, non-episodic foot pain (N=68) not fulfilling ACR/EULAR 2015 gout classification criteria, were compared with asymptomatic hyperuricaemic controls (N=25). Ultrasound (US) of bilateral first metatarsophalangeal (MTP) joints and features of MSU deposition including double contour (DC) sign, tophus and erosions were recorded. Cases were treated with ULT daily for 6 months. Serum urate, 24-hour and 7-day visual analogue score (VAS) 0–100 mm pain scales, the Manchester Foot Pain and Disability Index (MFPDI) and MTP US were recorded before treatment and after 3 and 6 months.

Results
68 hyperuricaemic individuals with persistent, non-episodic foot pain were recruited. At baseline MTP US DC sign, erosion and tophus occurred in 66.7%, 31.8% and 59.7% of cases, respectively. No significant difference was seen in baseline serum urate between cases (474±12.7 mg/dL) versus controls (402±17.4; p=NS). Serum urate in cases fell at 3 months (328±18.4; p<0.01) 6 months (287±17.7; p<0.01). For cases, baseline 24-hour pain VAS (44±3.4) reduced at 3 months (25±3.5; p<0.05) 6 months (20±4.1; p<0.05) of ULT. The 7-day pain VAS (58±3.4) decreased at 3 months (29±3.6; p<0.05) 6 months (30±4.2; P<0.05). MFPDI (17±1.2) decreased at 3 month (11±1.4; p=<0.05) 6 months (10±1.6; p=<0.05). When cases were grouped according to presence (N=44) or absence (N=22) of DC sign on baseline US, no differences were observed for baseline pain scores. Following ULT however, 24-hour pain VAS were significantly lower in DC positive patients at 3 months (18±3.7 DC positive vs 35±6.1 DC negative; p<0.05). Tophus but not erosion was also associated with a greater reduction in pain scores following ULT.

Figure 1: Table of Baseline Demographics.

Parameter (Mean ± SE)	Case (N = 68)	Control (N= 25)
Age (years)	52.93 ±1.9	50.28 ± 3.2
Male (N, %)	41 (60.3)	9 (36)
uric acid umol/L	474 ± 12.7*	402 ± 17.4
eGFR mL/min/1.73 m²	79.94 ± 3.2*	68.55 ± 2.8
CRP (mg/dl)	5.49 ± 1.1	3.25 ± 0.7
ESR (mm/hr)	18.27 ± 2.1	14.08 ± 1.9
Cholesterol (mmol/L)	4.79 ± 0.1	4.88 ± 0.14
Fasting Glucose (mmol/L)	5.76 ± 0.1	5.87 ± 0.4
Homocysteine (umol/L)	18.17 ± 0.1	15.15 ± 1.2
Systolic BP. (mm/hg)	143.73 ± 2.8	137.42 ± 3.8
Diabetes (N,%)	8 (11.8)	1 (4)
Hypertension (N, %)	25 (36.8)*	3 (12)
CKD (N, %)	10 (14.7)	2 (8)
IHD (N, %)	7 (10.3)	1 (4)
Malignancy (N, %)	2 (2.9)	1 (4)
BMI (kg/m2)	33.34 ± 0.8	31.48 ± 1.7
*= P <0.05		

Figure 2



- Baseline DC sign is associated with a greater reduction in non-specific foot pain at 3 and 6 months.
- Patient reported (A) 24-hour pain VAS (0–100 mm). (B) 7-day pain VAS (0–100 mm). (C) MFPDI and (D) serum urate concentration (umol/L) at 0–6months compared between patients with baseline positive DC sign (red line. N=44) or negative DC sign (blue line. N=22). Mean and SE values shown.
- *P<0.05. significant difference compared with baseline. paired t-test. **P<0.05 significant differences between groups. independent samples t-test.

Conclusions
These findings indicate that persistent, non-episodic foot pain in hyperuricaemia is both associated with US features of MSU deposition and is responsive to ULT.

Oral Presentations

YOUNG INVESTIGATOR AWARD

Thursday, 30 September 2021, 15.45-16.05

Abstract No.	Name	Title of Paper	Time
21A123	Rachael Flood	Urate-lowering therapy reduces non-episodic foot pain in patients who fail to meet ACR/EULAR 2015 gout classification criteria: An effect predicted by ultrasound.	15.45

CLINICAL PRESENTATIONS

Friday, 1 October 2021, 10.45-11.15

Abstract No.	Name	Title of Paper	Time
21A107	Caoilfhionn M. Connolly	Temporary Hold of Mycophenolate Augments Humoral Response to SARS-CoV-2 Vaccination in Patients with Rheumatic and Musculoskeletal Diseases	10.45
21A146	Áine Gorman	The value of knee arthroscopy in predicting RA in patients with seropositive arthralgia	10.55
21A148	Colm Kirby	Point of Care Ultrasound in a Rapid-Access GCA/PMR Clinic	11.05

SCIENTIFIC PRESENTATIONS

Friday, 1 October 2021, 11.15-11.45

Abstract No.	Name	Title of Paper	Time
21A105	Matthew Turk	Synovial Tissue Lymphoid Aggregates are Associated with Response to Rituximab Therapy in Rheumatoid Arthritis Patients	11.15
21A106	Orla Tynan	Comparison of the differential pathogenic mechanisms driving Rheumatoid arthritis and Psoriatic arthritis	11.25
21A119	Achilleas Floudas	Loss of balance between protective and pro-inflammatory synovial tissue T-cell polyfunctionality predates clinical onset of Rheumatoid Arthritis	11.35

PREMIER POSTER PRESENTATIONS

Thursday, 30 September 2021 - 17.30-18.00

Abstract No.	Name	Title of Paper
21A103	Sinead Maguire	High Prevalence of Complications in Pregnancies of Women with Axial Spondyloarthropathy: Emerging data from the Ankylosing Spondylitis Registry of Ireland
21A112	Viviana Marzaioli	CD209/CD14+ Dendritic Cells characterization in inflammatory arthritis: activation, synovial infiltration and therapeutic targeting
21A113	Aisling O'Brien	Targeting JAK-STAT signalling alters PsA synovial fibroblast pro-inflammatory and metabolic function
21A115	Achilleas Floudas	Distinct stromal and immune cell interactions shape the pathogenesis of Rheumatoid and Psoriatic arthritis.
21A124	Ashley Elliott	Effects of TNF-α versus Secukinumab on ultrasound confirmed enthesitis in Psoriatic Arthritis
21A141	Michele Doran	Title: RABRI (Rheumatoid Arthritis Biologics Registry of Ireland) – 5 year update
21A142	Daire O'Leary	Rare inflammatory variants identified on whole exome sequencing of an Irish cohort with chronic nonbacterial osteomyelitis.
21A162	Qutab Shah	Treat to Target Pathway (T2T) in inflammatory Arthritis Do certain groups respond to treatment differently?

Irish Society for Rheumatology

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The Irish Society for Rheumatology announces a planned book on the history of Rheumatology in Ireland and we are looking for your stories!

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We are currently writing up the history of Irish Rheumatology, documenting the lives of those who helped create the progress we enjoy today.

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Deadline: 1st November 2021

Contact: Gaye Cunnane, Professor of Rheumatology, TCD and SJH
Email: gayecunnane@hotmail.com

(21A107) ABSTRACT 1 ORAL PRESENTATION CLINICAL

Temporary Hold of Mycophenolate Augments Humoral Response to SARS-CoV-2 Vaccination in Patients with Rheumatic and Musculoskeletal Diseases

Author(s)
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Introduction
Mycophenolate is the mainstay of treatment for many organ and life-threatening manifestations of rheumatic and musculoskeletal diseases (RMD). In contrast to most patients with RMD, those taking mycophenolate have an attenuated humoral response to SARS-CoV-2 mRNA vaccines. This prompted the American College of Rheumatology to recommend withholding mycophenolate in the peri-vaccination period to enhance immunogenicity in this vulnerable population.

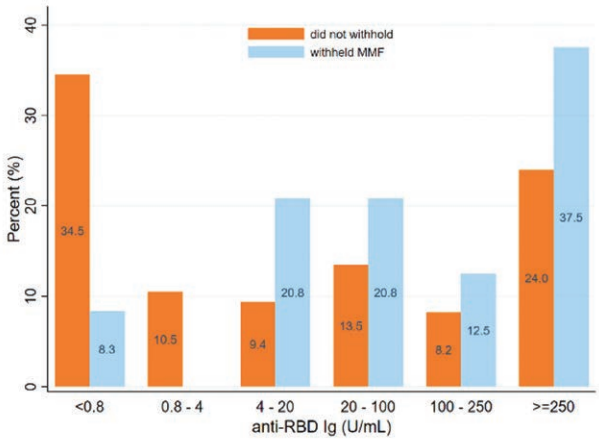
Aims/Background
We sought to analyze the impact of withholding peri-vaccination mycophenolate in patients with RMD.

Method
We leveraged our prospective cohort of RMD patients without prior COVID-19 who underwent SARS-CoV-2 vaccination between 12/17/2020 to 05/13/2021. Information on demographics, diagnoses, immunosuppressive regimens, and management of peri-vaccination immunosuppression was collected via electronic questionnaire. One month following vaccination, venipuncture samples were obtained and tested on the semi-quantitative Roche Elecsys® anti-SARS-CoV-2 S enzyme immunoassay which tests for antibodies against the receptor-binding domain (RBD) of the SARS-CoV-2 spike protein. We compared the percentage of participants with detectable anti-RBD antibodies in the group that withheld mycophenolate (n=24) to the group that continued mycophenolate (n=171) using Fischer's exact test (Table 1). Univariate logistic regression analyses were performed to assess associations between antibody responses. We then compared the two groups using multivariate logistic regression adjusting for age, sex, race, vaccine type (mRNA v. adenovirus platform), and use of rituximab and glucocorticoids. Wilcoxon rank-sum test was used to compare anti-RBD titers of the patients who withheld therapy to those who continued therapy (Figure 1).
Results
Ninety-two percent of participants who withheld mycophenolate had detectable antibody response compared to 65% who continued therapy (p=0.01). Those who withheld therapy were more likely to have a positive antibody response (OR 5.8, 95% CI 1.3-25.5 p=0.02). In the adjusted logistic regression model, the association between withholding mycophenolate and positive response rate remained statistically significant (aOR 7.24, 95% CI 1.72-44.31 p=0.01). Median anti-RBD titers in the withhold group were significantly higher than the group that continued therapy (125 v. 7U/L, p=0.004).

Conclusions
These early results suggest that a temporary hold in mycophenolate therapy is safe and augments the humoral response to SARS-CoV-2 vaccination in patients with RMD.

Figure

Figure 1. SARS-CoV-2 Anti-Receptor Binding Domain Antibody Titers Among Those who withheld MMF compared to those continued MMF during SARS-CoV-2 vaccination



Figure

	Continued mycophenolate (n=171)	Held mycophenolate (n=24)	p-value
Age, median (IQR)	45.7 (37.3, 58.4)	51.1 (39.5, 58.4)	0.5
Male sex, no. (%)	18 (10.5%)	2 (8.3%)	>0.99
Days from D2 to testing, median (IQR)	29.0 (28.0, 34.0)	32.0 (28.0, 35.0)	0.29
Non-white, no. (%)	27 (15.8%)	1 (4.2%)	0.21
Diagnosis, no. (%)			0.001
Inflammatory arthritis	5 (2.9%)	2 (8%)	
Systemic lupus erythematosus	56 (32.7%)	6 (25%)	
Sjögren's syndrome	3 (1.8%)	1 (4%)	
Myositis	24 (14.0%)	5 (21%)	
Systemic sclerosis	5 (2.9%)	4 (17%)	
Vasculitis	6 (3.5%)	0 (0%)	
Other	35 (20.5%)	2 (8%)	
Overlap connective tissue disease	38 (22.2%)	4 (17%)	
Vaccine, no. (%)			0.09
Pfizer	91 (53.2%)	13 (54.2%)	
Moderna	75 (43.9%)	8 (33.3%)	
J&J	5 (2.9%)	5 (2.9%)	
Therapy included in regimen, no. (%)			
Azathioprine	3 (1.8%)	1 (4.2%)	0.41
Hydroxychloroquine	79 (46.2%)	5 (20.8%)	0.03
Leflunomide	4 (2.3%)	0 (0.0%)	>0.99
Methotrexate	3 (1.8%)	0 (0.0%)	>0.99
Tacrolimus	11 (6.4%)	0 (0.0%)	0.37
Abatacept	0 (0.0%)	3 (12.5%)	0.002
Belimumab	18 (10.5%)	1 (4.2%)	0.48
Interleukin-17 inhibitor	1 (0.6%)	0 (0.0%)	>0.99
Rituximab	16 (9.4%)	2 (8.3%)	>0.99
TNF inhibitor	6 (3.5%)	1 (4.2%)	>0.99
Tofacitinib	0 (0.0%)	1 (4.2%)	0.12
Glucocorticoid	76 (44.4%)	9 (37.5%)	0.66
Immunomodulatory therapy	18 (10.5%)	1 (4.2%)	0.48
Combination therapy	100 (58.5%)	13 (54.2%)	0.83

(21A146) ABSTRACT 2 ORAL PRESENTATION CLINICAL

The value of knee arthroscopy in predicting RA in patients with seropositive arthralgia

Author(s)
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Department(s)/Institutions
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Speakers - Spring Meeting 2021

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Dr Sarah Mackie, Consultant Rheumatologist
and Associate Professor, University of Leeds

Dr Sanjeev Patel, Consultant Rheumatologist,
Kings College Hospital, London

Prof Patricl Kiely,
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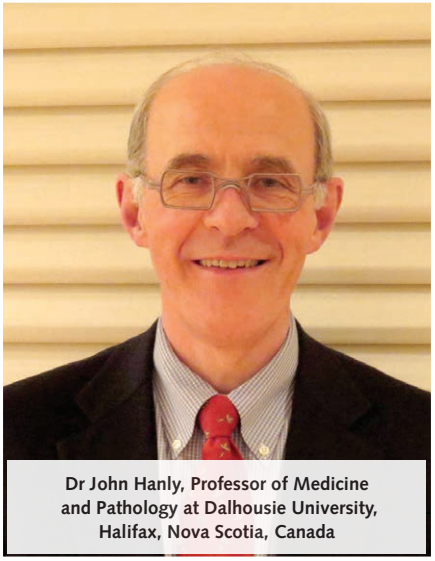
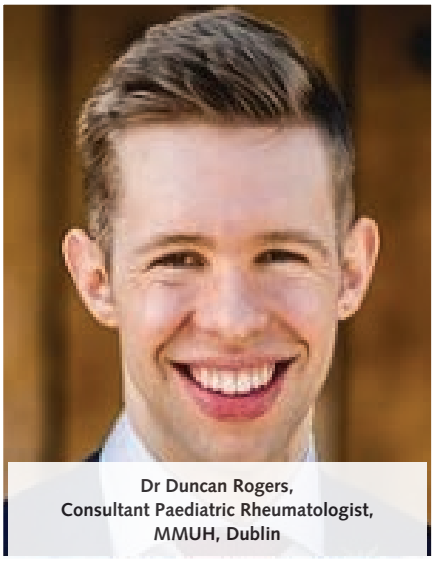
St George's University Hospital, London



Dr John Hanly, Professor of Medicine
and Pathology at Dalhousie University,
Halifax, Nova Scotia, Canada



Dr Duncan Rogers,
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Excellence, St. Vincent's University Hospital and University College Dublin, Ireland 2 Our Lady's Hospice and Care Services, Harold's Cross, Dublin, Ireland 3 Trinity Biomedical Sciences Institute, Trinity College Dublin, Ireland.

Introduction
Rheumatoid Arthritis (RA) is a chronic inflammatory condition often associated with joint destruction, disability, and reduced life expectancy. Before RA diagnosis, some patients may present with seropositive arthralgia characterised by pain and/or stiffness without any clinical evidence of inflammation. Seropositive arthralgia patients RA defined as joint pain without swelling, positive anti-citrullinated peptide antibodies (ACPA) or IgM rheumatoid factor (RF) are 'at risk' of developing RA.

Aims/Background
n this study we examine the knee arthroscopy and synovial biopsy features of 'at risk' patients for evidence of subclinical inflammation and assess its ability to predict progression to RA.

Method
Seropositive arthralgia patients underwent needle arthroscopy and synovial biopsy of a knee joint. . The degree of synovitis and vascularity were recorded on a 0-100mm visual analogue scale. The synovium was examined by routine histology of H&E staining. Patients were followed up at regular intervals (3 months, 6 months and1 year) with a clinical assessment and laboratory investigations to evaluate if they developed RA according to the ACR/EULAR 2010 criteria.

Results
A total of 48 patients were recruited, 67% developed RA. Family history, smoking, and early morning stiffness were not predictive of developing RA. A statistically significant correlation was found between ACPA levels of >340 and the development of RA (P=.03). A synovitis or vascularity score of greater than 50% at arthroscopy significantly correlated with RA development (P=.04; P=.002, respectively). If a patient had both synovitis and vascularity score of 50%, it was strongly associated with progression to RA (P<.001). If treated with conventional synthetic(cs) DMARDs for arthralgia, the median time for developing RA was 12 months compared to 3 months in those who did not receive treatment. Figure 1 outlines time to developing RA. The clinical course of the patients over 12 months is outlined in Figure 2.

Conclusions
Seropositive arthralgia patients' 'at risk' of developing RA demonstrate >50% macroscopic synovitis or vascularity score at knee arthroscopy. ACPA titre> 340 is associated with progression and csDMARD treatment may delay, but not prevent, the onset of RA .

Figure

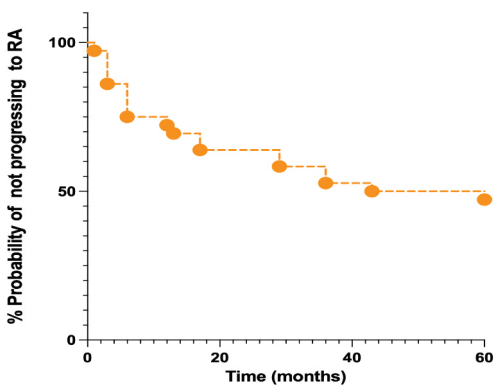

Figure 1: Kaplin-Meier Curve of the timeline of patients converting to RA

Figure

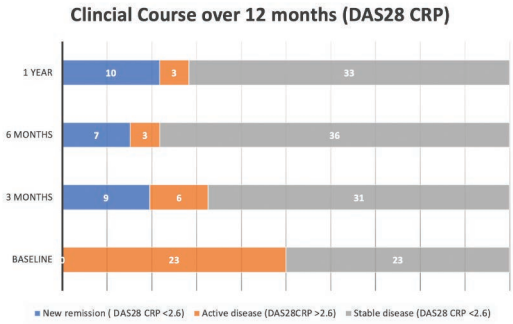

Figure 4: Clinical course over 12 months

(21A148) ABSTRACT 3 **ORAL PRESENTATION CLINICAL**

Point of Care Ultrasound in a Rapid-Access GCA/PMR Clinic

Author(s)
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Department(s)/Institutions
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Introduction
In recent years, temporal artery ultrasound (TAUS) has become a reliable alternative to temporal artery biopsy (TAB) for diagnosing Giant Cell Arteritis (GCA). Additionally, there is accumulating evidence that a substantial subset of Polymyalgia Rheumatica (PMR) patients have sonographic evidence of temporal artery inflammation in the absence of cranial symptoms. Prompt identification may help with earlier and more appropriate escalation of immunosuppressive therapy.

Aims/Background
1. To compare the diagnostic performance of TAUS with that of TAB. 2. To define the prevalence of subclinical temporal artery inflammation in those presenting with PMR.

Method
In August 2020, we established rapid-access GCA/PMR clinics in Tallaght University Hospital (TUH) and Cork University Hospital (CUH). ACR classification criteria for GCA and EULAR classification criteria for PMR were used as inclusion criteria. In most cases (70%), patients were seen within 24 hours from referral. Referral sources included primary care physicians, emergency departments, acute medical units and TUH/CUH inpatients. All study participants had vascular ultrasound performed of both temporal arteries (all 3 branches) and both axillary arteries. All patients in whom the diagnosis of GCA was suspected, were referred for TAB.

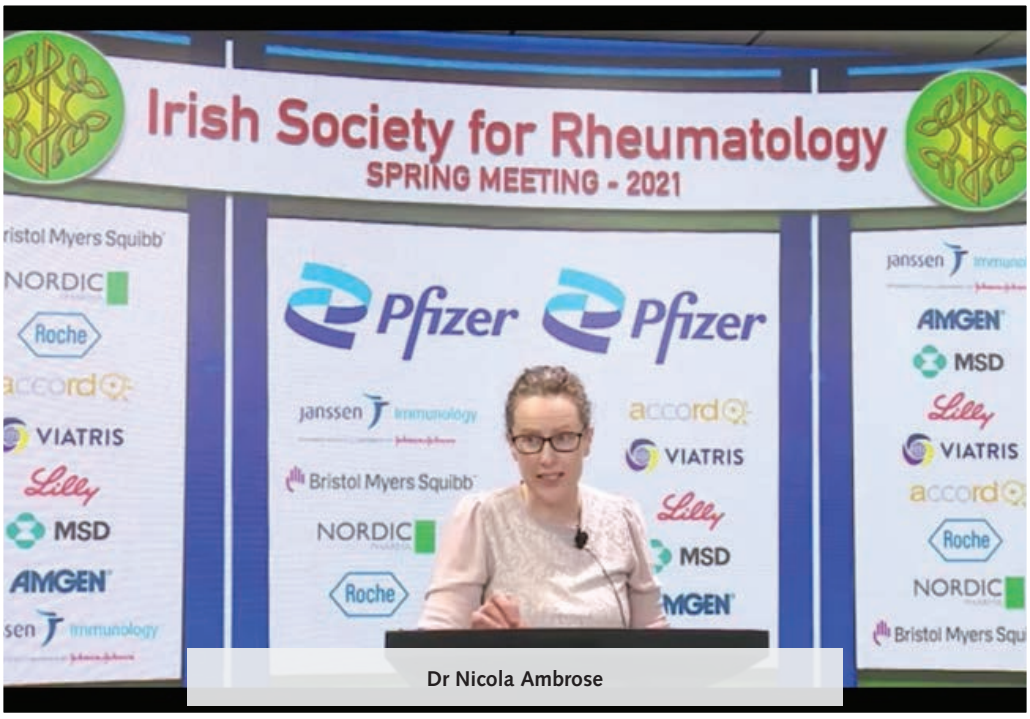
Results
100 patients were referred with a suspected diagnosis of GCA, of whom 57 ultimately had GCA diagnosed clinically. 49 patients with suspected GCA had TAB performed. Using clinical criteria as the reference standard, US and TAB demonstrated the following diagnostic performance for GCA:

Table 1
23 patients were referred with a suspected diagnosis of PMR, of whom 6 (26%) had GCA confirmed on ultrasound.

Speakers - Spring Meeting 2021

Professor Geraldine McCarthy

Professor Gerry Wilson



Dr Nicola Ambrose

Conclusions
Ultrasound is the optimal test for diagnosing GCA. In our model, hospital admission would have been avoided entirely in 50% of patients. This study adds to the evidence which suggests a significant proportion of seemingly pure PMR patients have underlying GCA at diagnosis. We propose that vascular ultrasound should be performed as routine in all PMR patients at baseline.

Figure

(n=57)	Ultrasound	TAB
Sensitivity	89%	41%
Specificity	91%	100%
Positive Predictive Value	93%	100%
Negative Predictive Value	87%	16%

(21A105) ABSTRACT 4 ORAL PRESENTATION SCIENTIFIC

Synovial Tissue Lymphoid Aggregates are Associated with Response to Rituximab Therapy in Rheumatoid Arthritis Patients

Author(s)
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Department(s)/Institutions
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Introduction
Due to the role of activated B lymphocytes and plasma cells in the pathogenesis of rheumatoid arthritis (RA), Rituximab has been an effective therapy since 2002.

Aims/Background
The goal of this study was to evaluate the clinical and laboratory factors associated with long-term responses to Rituximab therapy in patients with RA.

Method
One hundred fourteen RA patients received intravenous Rituximab between 2003-2016. Prior to treatment, arthroscopy and synovial biopsy was performed on a subgroup of patients in this cohort who had active knee arthritis. Demographic, clinical, and outcome data were collected prospectively and immunohistology was performed on synovial tissue biopsies.

Results
In the overall cohort, 89% of patients were seropositive for either RF (rheumatoid factor) or ACPA (anti-citrullinated protein antibodies). At baseline, median disease duration was 13.5 years. Seventy-four percent of patients had received a csDMARD and two thirds had received a bDMARD before Rituximab. Rituximab monotherapy was used in 34 patients, while 80 patients received rituximab-csDMARD combination therapy. Forty-four patients underwent an arthroscopy and synovial biopsy prior to treatment. Synovial tissue lymphoid aggregates (LA) were observed in 21 subjects, of which 17 (81%) showed complete or partial remission in response to treatment with Rituximab. The presence of LA was significantly associated with rituximab-induced remission in these patients (p=0.007, OR=7.286 [1.737-30.555]). Twenty-six of the 68 patients in remission (38%) received Rituximab monotherapy and 42/68 (62%) received combination therapy with a csDMARD. Twenty-four of 39 (62%) biologic naïve patients achieved remission on treatment with rituximab. There was no significant association between any other clinical or laboratory markers and remission in patients treated with rituximab.

Conclusions
These data show significant evidence for lymphoid aggregates as a predictive marker for response to treatment with rituximab.

Figure

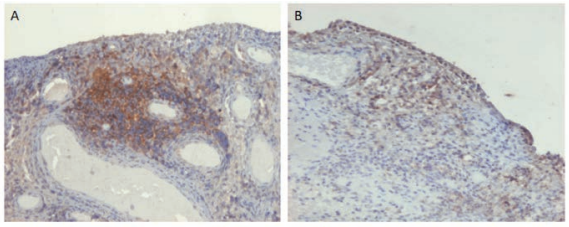

Figure 1. Immunostaining of rheumatoid arthritis synovial tissues for CD20+ B cells showing a B cell rich lymphoid aggregate in A, and a sparse diffuse B cell infiltrate without any aggregates in B. (Original magnification x 10).

(21A106) ABSTRACT 5 ORAL PRESENTATION SCIENTIFIC

Comparison of the differential pathogenic mechanisms driving Rheumatoid arthritis and Psoriatic arthritis

Author(s)
Dr Orla Tynan (Thesis); Dr Mary Canavan; Dr Achilleas Floudas; Dr Megan Hanlon; Prof Ursula Fearon.

Department(s)/Institutions
Department of Molecular Rheumatology, Trinity College Dublin

Introduction
Rheumatoid arthritis (RA) and Psoriatic arthritis (PsA) constitute forms of inflammatory arthritis (IA) characterised by heightened angiogenesis, immune cell influxes, and generation of a hypoxic microenvironment resulting in bone and cartilage destruction. However, significant differences in circulating biomarkers in addition to disease pathogenesis at the clinical, immunological, cellular, and molecular levels have been identified.

Aims/Background
The aim was to examine circulatory miRNA as cellular biomarkers that can distinguish RA from PsA and to evaluate the potential implication for disease pathogenesis. Furthermore, this study aimed to examine the differential effect of the joint microenvironment on endothelial cell (EC) function in both RA and PsA.

Method

RA patients, PsA patients and healthy controls (HC) were recruited from St. Vincent's University Hospital, and serum was collected. Multiplex analysis of 68 serum miRNAs was performed using the FirePlex miRNA Immunology-V2 panel. ROC curves were generated to determine sensitivity and specificity of specific miRNAs whilst DNA intelligent analysis (DIANA)-mirPath and STRING software were used to analyse pathways targeted by the dysregulated miRNAs. Additionally, human umbilical vein endothelial cells (HUVEC) were cultured with RA and PsA synovial fluid (SF). Angiogenesis, invasion, and cellular adhesion were quantified by Matrigel tube formation assays, wound healing assays, and adhesion assays. Cellular bioenergetics was analysed using the Seahorse XFe96 Analyser.

Results

7 miRNAs; miR-126-3p, miR-29b-3p, miR-22-3p, miR-223-3p, miR-320a, let-7g-5e, and let-7g-5p (all**p≤0.01), were significantly elevated in RA serum compared to both PsA patients and HC, with miR-29b-3p, miR-22-3p, and miR-223-3p demonstrating the greatest separation between RA and PsA. DIANA and STRING analysis identified the P13K-Akt pathway as being the primary target of these 3 miRNAs with specific gene targets involved in this pathway including factors all importantly associated with endothelial cell migration, proliferation, invasion, and angiogenesis. Furthermore, PsA SF significantly enhanced EC tube formation, leukocyte-adhesion, and metabolic activity. RA SF significantly enhanced EC leukocyte-adhesion.

Conclusions

Circulating miRNAs may be valuable as diagnostic biomarkers that can distinguish RA from PsA. Additionally, the joint microenvironment induces EC function, with these effects more pronounced in response to PsA SF compared to RA SF. These pathogenic effects are paralleled by changes in EC metabolic profiles.

(21A119) ABSTRACT 6 **ORAL PRESENTATION SCIENTIFIC**

Loss of balance between protective and pro-inflammatory synovial tissue T-cell polyfunctionality predates clinical onset of Rheumatoid Arthritis

Author(s)

Floudas A, Neto N, Orr C, Canavan M, Gallagher P, Hurson C, Monaghan MG, Nagpar S, Mullan R, Veale DJ, Fearon U.

Department(s)/Institutions

Molecular Rheumatology Medical School Trinity College Dublin

Introduction

Effective treatment of Rheumatoid arthritis (RA) is achievable within a short window of opportunity. Identification of pathogenic immune mechanisms at a pre-RA stage would greatly benefit our understanding of the early events that govern disease progression and help identify early points of therapeutic intervention. Polyfunctional T cells (Poly-T) produce simultaneously multiple pro-inflammatory cytokines and have been associated with disease progression in PsA and RA. We performed extensive characterisation of synovial tissue Poly-T cells from healthy controls, arthralgia subjects.

Aims/Background

This study investigates pathogenic and protective polyfunctional T-cell responses in rheumatoid arthritis (RA) patient, individuals at risk (IAR) and healthy control (HC) synovial-tissue biopsies and identifies the presence of a novel population of pathogenic polyfunctional T-cells that are enriched in the RA joint prior to the development of clinical inflammation.

Method

Pathway enrichment analysis of previously obtained RNAseq data of synovial biopsies from RA (n=118), IAR (n=20) and HC (n=44) was performed. Single-cell synovial tissue suspensions from RA (n=9), IAR (n=7) and HC (n=5), and paired PBMC were stimulated in-vitro and polyfunctional synovial T-cell subsets examined by flow cytometric analysis, SPICE visualization and FlowSom clustering. Flow-imaging was utilised to confirm specific T-cell cluster identification. Fluorescent Lifetime Imaging Microscopy (FLIM) was used to visualise metabolic status of sorted T-cell populations.

Results

Increased plasticity of Tfh cells and CD4 T-cell polyfunctionality with enriched memory Treg cell responses was demonstrated in RA patient synovial-tissue. Synovial-tissue RNAseq analysis reveals that enrichment in T-cell activation and differentiation pathways pre-dates the onset of RA. Switch from potentially protective IL-4 and GMCSF dominated polyfunctional CD4 T-cell responses towards pathogenic polyfunctionality is evident in IAR and RA patient synovial-tissue. Cluster analysis reveals the accumulation of highly polyfunctional CD4+CD8dim¬¬ T-cells in IAR and RA but not HC synovial-tissue. CD4+CD8dim T-cells show increased utilisation of OXPHOS, a characteristic of metabolically primed memory T-cells and are resistant to suppression by autologous regulatory T cells. Frequency of synovial CD4+CD8dim T-cells correlates with RA disease activity.

Conclusions

Switch from potentially protective to pathogenic T-cell polyfunctionality pre-dates the onset of clinical inflammation and constitutes an opportunity for therapeutic intervention in RA.

Figure

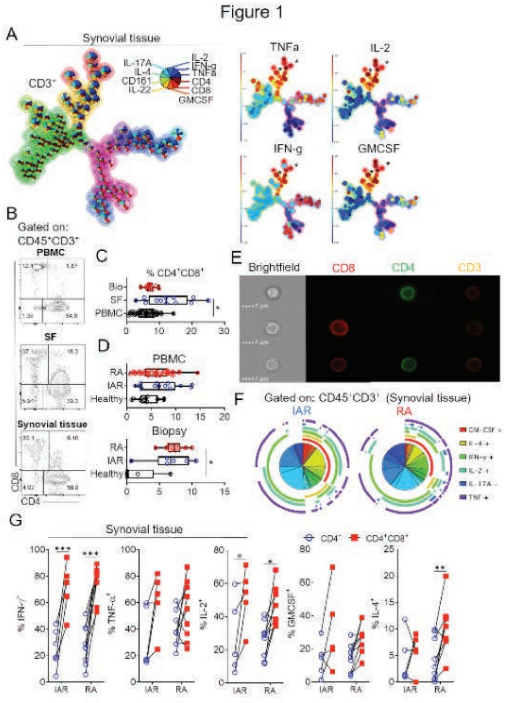

Figure 1. Highly polyfunctional CD4+ CD8+ T cells are present at the synovial tissue of IAR subjects and RA patients.

A. FlowSom unsupervised clustering algorithm analysis of RA patient synovial $CD3^+$ T cells for the identification of phenotypically distinct highly polyfunctional T cell clusters. Symbols indicate polyfunctional $CD4^+CD8^+$ DP T cells. B. Representative flow cytometric analysis of paired RA patient peripheral blood, synovial fluid and synovial tissue $CD3^+$ T cells. C. Frequency of $CD4^+CD8^+$ DP T cells in the periphery (n=34), synovial fluid (n=13), and synovial tissue (n=10), of RA patients. D. Frequency of $CD4^+CD8^+$ DP T cells in the periphery and synovial tissue of HC (n=11 and n=5 respectively), IAR (n=13 and n=6 respectively), subjects and RA (n=34 and n=9 respectively) patients. E. Representative imaging flow cytometry of RA patient synovial fluid $CD4^+$, $CD8^+$ and $CD4^+CD8^+$ DP T cells. F. Representative SPICE algorithm flow cytometric analysis data visualization for IAR and RA synovial tissue biopsy $CD4^+CD8^+$ T cells. G. Frequency of IAR (n=4-5) and RA (n=9) synovial tissue $CD4^+$ and paired $CD4^+CD8^+$ DP T cells expressing the indicated cytokines. Symbols indicate individual samples, 2-way ANOVA with Sidak's multiple comparisons test was used (***p <0.001, **p = 0.007, *p <0.05).

Figure

Figure 2

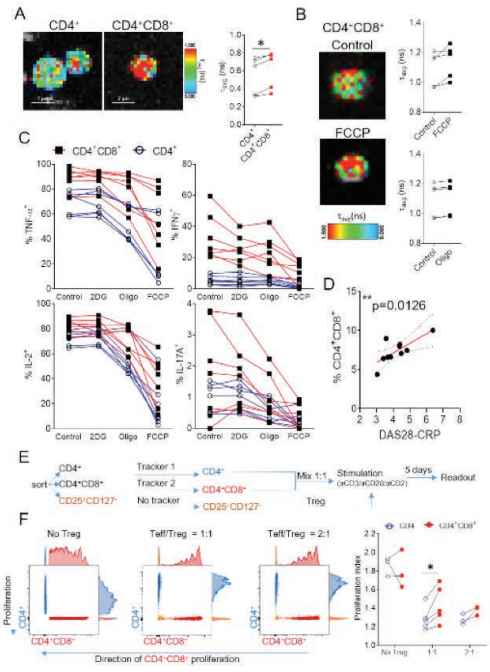

Figure 2. CD4+ CD8+ T cells are metabolically primed and correlate with disease severity in RA. A. FLIM images and cumulative data of RA patient metabolic assessment of flow sorted peripheral blood CD4+ and CD4+CD8+ DP T cells, (n=5). B. FLIM images and data on flow sorted CD4+CD8+ DP T cells following treatment with FCCP or oligomycin, symbols indicate individual samples (n=4). D. Linear regression graph for the synovial tissue frequency of RA (n=10) patient CD4+CD8+ DP T cells and disease severity score (DAS28-CRP). E. Schematic of Treg suppression assay. Briefly, CD4+ and CD4+CD8+ DP T cells were flow sorted differentially labeled and cultured with reducing number of autologous flow sorted Treg cells. Following a 5 day stimulation, T cell proliferation was assessed. F. Flow cytometric analysis of CD4+ and CD4+CD8+ DP T cells proliferating in the presence of Treg cells, n=3-5 per condition. Symbols indicate individual samples, 2-way ANOVA with Sidak's multiple comparisons test was used (*p <0.05).

(21A103) ABSTRACT 7 **PREMIER POSTER 1**

High Prevalence of Complications in Pregnancies of Women with Axial Spondyloarthropathy: Emerging data from the Ankylosing Spondylitis Registry of Ireland

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Introduction
The understanding of axSpA has evolved rapidly over time resulting in improved recognition of the disease. Unfortunately, for axSpA women there is limited data available on pregnancy outcomes in this population. The Ankylosing Spondylitis Registry of Ireland (ASRI) is a source of epidemiological data on axSpA in Ireland.

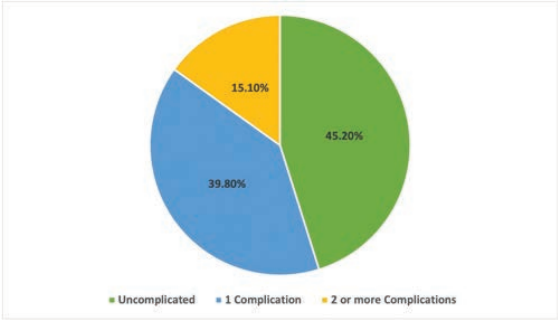
Aims/Background
The aim of this study was to examine the prevalence of pregnancy and fetal complications in women with axSpA.

Method
The ASRI records information on baseline demographics, imaging, medications, patient outcomes and comorbidities. A dedicated section within the ASRI collects data on pregnancy, fertility and breastfeeding. For enrolment patients must have been diagnosed with axSpA by a Rheumatologist and meet the ASAS classification criteria for axSpA. Informed consent was obtained from all patients, with ethical approval obtained from local hospital ethics committees.

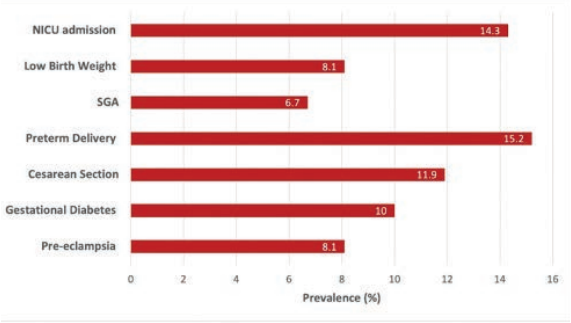
Results
In total, 220 females were enrolled in the ASRI, representing 24.3% of participants. Mean age of females was 43.9 years, with a mean disease duration of 18 years and mean delay to diagnosis 7.9 years. 68.6% (151) had radiographic axSpA, while 31.4% (69) had non-radiographic disease.
77 women with axSpA reported a total of 259 pregnancies resulting in 210 live births. Of these pregnancies 45.2% (117) were uncomplicated and 54.8% (142) were complicated, with 15.1% (39) encountering multiple complications (figure 1). Miscarriage prevalence was high affecting 18.9% (49) of pregnancies in 37.7% (29) of women.
Of the live births, the most common pregnancy complication was preterm birth in 15.2% (32) followed by caesarean section in 11.9% (25), while the most common fetal complication was NICU admission in 14.3% (30) (figure 2). 11 women (14.3%) reported difficult conceiving with 6 (7.8%) seeking a fertility specialist consultation. Breastfeeding prevalence was low, reported in 38.6% (81) of live births.

Conclusions
There is a high prevalence of pregnancy and fetal complications in women with axSpA. These results represent a preliminary analysis of outcomes in axSpA pregnancies collected via a large national registry. This provides much needed insight into the impact of axSpA on pregnancy, which can be used to improve monitoring and management of axSpA women during their pregnancies.

Figure



Figure



(21A112) ABSTRACT 8 PREMIER POSTER 2

CD209/CD14+ Dendritic Cells characterization in inflammatory arthritis: activation, synovial infiltration and therapeutic targeting

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Introduction
Dendritic cells (DC) are a heterogeneous population of professional antigen-presenting cells. A specific subset of DCs, deriving from monocyte, and have a key role in inflammation and infection.

Aims/Background
To identify and characterize the CD209+/CD14+ DC subset and evaluate their characteristics in the periphery and the site of inflammation of rheumatoid (RA) and psoriatic arthritic (PsA) patients.

Method
Peripheral blood and synovial fluid mononuclear cells (PBMC and SFMC) were isolated from healthy subject (HC), RA and PsA patients. Single-cell synovial tissue suspension (ST) was obtained by enzymatic digestion. Flow cytometry was performed to identify the CD209+/CD14+ DC subset, its frequency and co-expression of chemokines receptors (CCR6,-CCR7,-CXCR3,-CXCR4-CXCR5) and activation markers (CD40,-CD80) on the surface of the DC subset. CD209+/CD14+ DC subset development was analysed in patients recruited pre and post Tofacitinib and TNF inhibitors therapy.

Results
We identified, for the first time, the CD209+/CD14+ DC population in PBMC of RA and PsA patients, which similar frequency observed when compared to HC. However, we observed activation of circulating CD209/CD14+ DC from both RA and PsA patients, with higher production of cytokines (IL12/TNFα), in addition to expression/co-expression of chemokine receptors (CCR6/CCR7/CXCR3/CXCR4/CXCR5). Interestingly, we observed that this DC population was enriched at the site of inflammation, in SFMC and ST and displayed a mature phenotype, with a significant increase in CD40 and CD80 and co-expression of specific chemokine receptors, displaying unique patterns between PsA and RA. We developed a protocol of magnetic isolation for CD209+ DC from blood and observed that culture of healthy CD209+DC with IA synovial fluid SF was sufficient to induce the development of CD209/CD14+ DC, leading to a poly-mature DC phenotype. Finally, we observed that JAK/STAT inhibition, but not TNF inhibitor, reduced the generation and development of CD209+/CD14+ DC.

Conclusions
This study identifies a new pathogenic and infiltrating DC subset in RA and PsA patients, which could be specifically targeted for therapeutical purpose.

(21A113) ABSTRACT 9 PREMIER POSTER 3

Targeting JAK-STAT signalling alters PsA synovial fibroblast pro-inflammatory and metabolic function

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Introduction
Psoriatic arthritis (PsA) is a chronic inflammatory disease associated with psoriasis. Janus Kinase inhibitors (JAKi) have emerged as an encouraging class of drugs for the treatment of PsA.

Aims/Background
The aim of this study was to compare the effect of four JAKi on primary PsA synovial fibroblasts (PsAFLS) activation, metabolic function, and invasive and migratory capacity.

Method
Primary PsAFLS were isolated and cultured with JAKi (Peficitinib, Filgotinib, Baricitinib and Upadacitinib) in the presence of Oncostatin M (OSM) . pSTAT3 expression in response to OSM was quantified by Western Blot analysis Pro-inflammatory cytokines/chemokines were quantified by ELISA and cell migration by wound-repair scratch assays. Invasive capacity was examined using MatrigelTM invasion chambers and MMP multiplex MSD assays. PsAFLS bioenergetics was assessed using the Seahorse XFe Extracellular Flux Analyzer, which simultaneously quantifies two energetic pathways- glycolysis (ECAR) and Oxidative phosphorylation (OCR). In parallel, inflammatory, invasive, and migratory genes were quantified by RT-PCR

Results
OSM induces pSTAT3 in PsAFLS. OSM-induced secretion of MCP-1 and IL-6 was inhibited by all JAKi with Peficitinib, Baricitinib and Upadacitinib showing the greatest effect. In contrast, JAKi had no significant impact on IL-8 expression in response to OSM. PsAFLS cell invasion, migrative capacity and MMP1,3, and 9 were suppressed following JAKi treatment, with Peficitinib showing the greatest effect.. These functional effects were accompanied by a change in the cellular bioenergetic profile of PsAFLS, where JAKi significantly decreased glycolysis and the ECAR/OCR ratio induced by OSM, resulting in a shift to a more quiescent phenotype, with Peficitinib demonstrating the most pronounced effect.

Conclusions
This study demonstrates that JAK/STAT signalling mediates the complex interplay between inflammation and cellular metabolism in PsA pathogenesis. This inhibition, shows effective suppression of inflammatory mechanisms that drive pathogenic functions of PsAFLS, further supporting the role of JAKi as a therapeutic target for the treatment of PsA.

(21A115) ABSTRACT 10 PREMIER POSTER 4

Distinct stromal and immune cell interactions shape the pathogenesis of Rheumatoid and Psoriatic arthritis.

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Introduction
Immune and stromal cell communication is central in the pathogenesis of Rheumatoid (RA) and psoriatic arthritis (PsA), however, the nature of these interactions that drive synovial pathology can differ. Identifying immune and stromal cell cross-talk at the site of inflammation in RA and PsA is challenging. In this study we have used single cell transcriptomics to profile 178.000 synovial tissue cells from 9 patient samples, importantly, without prior sorting of immune and stromal cells. This approach enabled the generation of a cell atlas of the intact synovial tissue in order to identify immune and stromal cell interactions.

Aims/Background
To identify immune and stromal cell cross-talk in the pathogenesis of RA and PsA synovial inflammation.

Method
scRNAseq analysis of single cell suspensions derived from 5 RA and 5 PsA patient synovial tissue biopsies was performed based on the 10X Genomics platform. Single cell data analysis was performed in R utilising novel quality control and analysis steps. Briefly, following sequencing doublet cells were excluded with the DoubletFinder package. Dead cells were excluded based on mitochondrial RNA abundance and live cell RNAseq data were normalised and transformed using SCtransform. Dimensionality of the data was determined and high level data integration was achieved with Harmony, followed by generation of a UMAP - cell atlas of the synovial tissue. Downstream analysis includes: Receptor-Ligand interaction networks, differential gene expression, pathway analysis and more.

Results
Using state of the art data integration and imputation techniques we were able to identify and characterise 18 stromal and 14 immune synovial cell clusters. We report distinct fibroblast and endothelial cell transcriptomes and subpopulation abundances in RA and PsA characterised by differential transcription factor usage. Importantly, using receptor ligand interactions and downstream target characterisation, we identify RA specific synovial T cell derived TGFb and macrophage IL1b synergy in driving the transcriptional profile of FAP+THY1+ invasive synovial fibroblasts.

Conclusions
Disrupting specific immune and stromal cell interactions offers novel opportunities for targeted therapeutic intervention in RA and PsA.

Figure

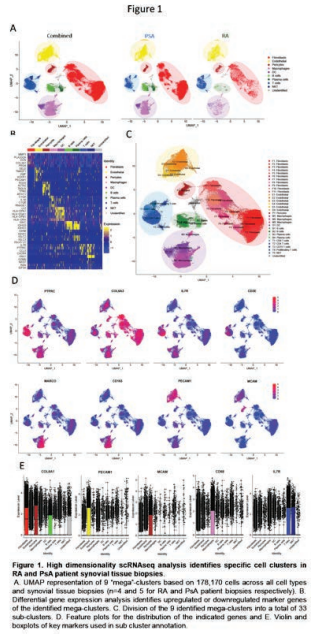

Figure 1. High dimensionality scRNAseq analysis identifies specific cell clusters in RA and PsA patient synovial tissue biopsies
A. UMAP representation of 9 "mega"-clusters based on 178,170 cells across all cell types and synovial tissue biopsies (n=4 and 5 for RA and PsA patient biopsies respectively). B. Differential gene expression analysis identifies upregulated or downregulated marker genes of the identified mega-clusters. C. Division of the 9 identified mega-clusters into a total of 33 sub-clusters. D. Feature plots for the distribution of the indicated genes and E. Violin and boxplots of key markers used in sub cluster annotation.

Figure

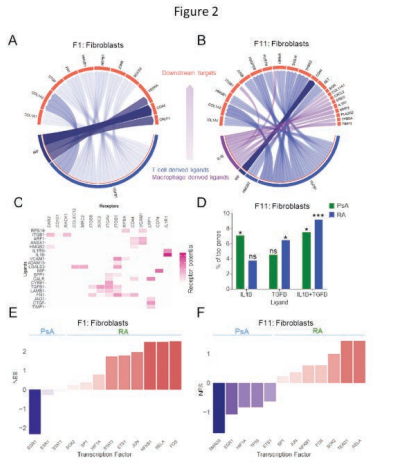

Figure 2. Identification of ligand receptor interactions that promote invasive fibroblasts.
A. Circo plot depicting the top ligand and downstream target interaction for enriched in PsA synovial fibroblast cluster F1. b. Circo plot depicting the top ligand and downstream target interaction for enriched in RA, invasive synovial fibroblast cluster F11. C. Heatmap of ligand receptor interactions for synovial fibroblast cluster F11. D. Percentage of gene targets downstream of IL1B, TGFB1 or IL1B+TGFB as part of the top targets regulated by F11 fibroblast cluster receptors. Asterisks indicate significance of ligand-target interactions. E and F. DoRothEA analysis of transcription factor usage by PsA compared to RA macrophage cell cluster M1 cells, based on expression of known downstream ligands. Normalised enrichment score (NES) derived by VIPER statistical analysis is shown.

(21A124) ABSTRACT 11 PREMIER POSTER 5

Effects of TNF-α versus Secukinumab on ultrasound confirmed enthesitis in Psoriatic Arthritis

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Introduction
Enthesitis is an important aspect of psoriatic disease and the clinical

assessment of enthesitis has problems in terms of sensitivity and specificity. Ultrasound has demonstrated that those with persistent active entheseal disease are at risk of progressive articular damage
Aims/Background
There is limited data to help clinicians select the most appropriate biologic therapy for PsA patients. We wanted to assess the response on US confirmed enthesitis to different forms of biologic therapy

Method
The MASEI score is a validated US tool to assess enthesitis. We modified the score to count only active elementary lesions (ActiveMASEI) which was further modified to include only power doppler signal within 2mm of the enthesis insertion. This was an observational study with patients aged ≥ 18 years, fulfilling the CASPAR criteria and commencing on their first biologic therapy. The trained sonographer was blinded to clinical findings and treatment choice and patients were assessed at baseline and at 16 weeks of treatment

Results
80 PsA patients were enrolled with 24 commencing on secukinumab and 56 on a TNFi (Adalimumab n=50). 75 patients completed the study (Secukinumab n = 23 and TNFi n= 52). Baseline characteristics were broadly similar for either class of biologic. The average age was 45.29 years and 52.5% participants were female
The mean difference in MASEI score reduction was 1.68 (-0.31 - 3.68 p = 0.097) with TNFi compared with Secukinumab. The mean difference in MASEIActive and MASEImActive score reduction was 2.10 (0.21-4.00 p =0.030) and 2.37 (0.68-4.05 p=0.007) respectively for TNFi versus Secukinumab. The clinical enthesitis SPARCC score correlated with the baseline MASEIActive score (rs = 0.23 p = 0.04) and a change in SPARCC correlated with a change in MASEI Active (rs =0.30 p = 0.01). Apart from a better reduction in psoriasis outcomes with Secukinumab versus TNFi, clinical scores were similar for both classes of biologic therapy

Conclusions
In this study we have for the first time compared the effect on US confirmed enthesitis between different forms of biologic therapy for PsA. We have demonstrated superiority of TNFi versus secukinumab in regards to active US entheseal disease and correlated imaging with clinical assessment

Figure

Table 1
Baseline Characteristics

Patient Characteristic n=80	Overall	IL-17i (n=24)	TNFi (n= 56)	p-value (<0.05 in bold)
Baseline Characteristics				
Age, years	45.29 (12.74)	46.04 (10.33)	44.96 (13.72)	0.70
Sex, [n]%				0.23
Male	38 (47.5)	14	24	
Female	42 (52.5)	10	32	
BMI kg/m²	28.99 (5.57)	29.63 (4.99)	28.70 (5.83)	0.47
Duration of from PsA diagnosis, years	7.97 (7.38)	7.21 (7.49)	8.29 (7.38)	0.56
Concomitant csDMARD n (%) .	38 (51.3)	7 (29.2)	31 (55.4)	0.10
Methotrexate n (%)	29 (36.3)	7 (29.2)	22 (39.3)	0.73
Baseline Disease scores				
Tender Joint count	12.43 (11.78)	11.04 (10.63)	13.02 (12.28)	0.47
Swollen Joint count	4.29 (5.11)	4.42 (5.60)	4.23 (4.94)	0.89
PASI	3.10 (4.13)	4.35 (3.86)	2.56 (4.15)	0.07
Patients Global assessment of disease activity VAS mm	58.36 (23.16)	55.83 (22.97)	59.45 (23.36)	0.53
Patients Global assessment of pain VAS mm	61.71 (22.84)	56.88 (19.99)	63.79 (23.82)	0.19
LEI /6	1.18 (1.35)	1.29 (1.04)	1.13 (1.47)	0.57
SPARCC enthesitis index /16	2.84 (2.30)	2.71 (1.83)	2.89 (2.50)	0.71
BASDAI score	6.51 (2.09)	6.32 (2.08)	6.59 (2.11)	0.61
Dactylitis score /20	0.66 (1.41)	0.75 (1.88)	0.63 (1.29)	0.75
NAPSI fingernails /80 n = 65	9.82 (11.31)	13.00 (14.08)	8.50 (9.83)	0.22
HAQ-DI	1.26 (0.68)	1.25 (0.75)	1.27 (0.66)	0.84
DLQI	6.51 (6.61)	9.96 (7.29)	5.04 (5.76)	**0.01**
CRP mg/L	6.80 (11.81)	5.41 (11.22)	7.39 (12.10)	0.48
DAS-28	3.57 (1.20)	3.41 (1.23)	3.65 (1.89)	0.43
DAPSA	29.42 (17.81)	27.30 (16.97)	30.33 (18.24)	0.48

Figure

Table 2. Ultrasound outcomes with change in ultrasound score (SD) by treatment administered

Ultrasound index	IL17i	TNFi	Mean difference (95% CI) TNFi vs IL17i	p value
MASEI	1.74 (3.36)	3.42 (5.13)	1.68 (-0.31 - 3.68)	0.097
MASEIActive	2.26 (2.99)	4.37 (5.15)	2.10 (0.21-4.00)	**0.030**
MASEImActive	2.00 (2.52)	4.37 (4.78)	2.37 (0.68-4.05)	**0.007**

MASEI- Madrid sonographic enthesitis index, MASEIActive - Active elementary lesion of the Madrid sonographic enthesitis index, MASEImActive- MASEIActive score with modification to only include power doppler <2mm from enthesis insertion

Table 5. Correlation between clinical enthesitis scores and ultrasound assessment both at baseline and change with treatment.

(21A141) ABSTRACT 12 **PREMIER POSTER 6**

RABRI (Rheumatoid Arthritis Biologics Registry of Ireland) – 5 year update

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Introduction
RABRI was established in Ireland in 2015 to document information about patients with Rheumatoid Arthritis (RA) in Ireland commencing a new biologic disease modifying anti-rheumatic drug therapy (bDMARD) with more recent additions of biosimilars and targeted synthetic DMARDs (tsDMARD).

Aims/Background
The aims of RABRI are to monitor response to therapy, and to evaluate long-term safety in RA patients on bDMARD, biosimilar and tsDMARD therapies. The main findings after 5 years are summarised here.

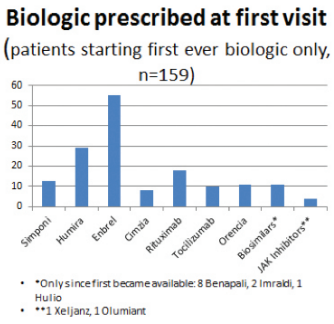
Method
Following establishment of the RABRI Steering Committee in 2015, an electronic database was established, in which pseudonymised data is stored electronically. Ethical approval was obtained, and updated as necessary, in participating centres. Patients entering RABRI are reviewed at baseline (starting 1st or changing biologic), at 6-monthly intervals for the 1st 3 years, and yearly thereafter for a further 2 years.

Results
Enrolment started in late 2015. A total of 6 centres have enrolled a total of 292 patients, with a total of 913 recorded visits. 59 patients have completed the 5 y follow-up period. Enrolment and follow-up visits have been adversely affected by pandemic-related issues, in addition to staffing issues in rheumatology departments, leading to lower numbers than anticipated and some missing data.
Of the patients enrolled to date, a total of 159(54.5%)were starting their first bDMARD, the remainder 133(45.5%) were switching from one to another. A total of 9 biologic therapies, 4 biosimilars, and 3 tsDMARD (JAK1-inhibitors) have been included to date. Table 1 illustrates the distribution of biologic therapies among the 159 patients starting their first biologic.
For the 201 patients with more than 1 visit recorded, 79 switches of biologic therapy have taken place, of which 17 were switches to a biosimilar version of same medication.

23 adverse events have been recorded: 6 deaths, 4 serious infections, 5 serious skin reactions, 4 malignancies, 2 aplastic anaemia, and 2 instances of severe drug hypersensitivity.

Conclusions
The changing pattern of treatment of RA, with new treatment options now available, is reflected in the RABRI database. RABRI continues to provide useful information regarding the long-term safety of the newer treatments for RA.

Figure



(21A142) ABSTRACT 13 PREMIER POSTER 7

Rare inflammatory variants identified on whole exome sequencing of an Irish cohort with chronic nonbacterial osteomyelitis.

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Introduction
Chronic nonbacterial osteomyelitis (CNO) is a rare inflammatory disease affecting bone predominantly occurring in the paediatric population. It is frequently associated with psoriasis. Activation of the NLRP3 inflammasome has been implicated both human and mouse models of the disease.

Aims/Background
To identify a candidate list of rare, deleterious variants in known inflammatory genes in an Irish CNO cohort.

Method
41 unrelated Irish children with CNO were recruited. Whole exome sequencing was performed on blood using Agilent SureSelect XT Human All Exon V6 kits and Illumina HiSeq 3000 with 150bp paired-end reads. Reads were aligned to the hg19 reference genome. After preprocessing, variants were hard filtered using quality by depth(QD) > 2.0, read depth (DP) >10 and genotype quality (GQ) >20. Synonymous variants and variants with MAF > 0.01 were excluded from further analysis. Remaining variants were filtered against existing databases of genes known to be associated with inborn errors of immunity, autoimmunity or autoinflammation. The Gene Damage Index (GDI) was used to identify genes which are least tolerant to variance and CADD phred score to identify variants predicted to be deleterious. Genes with variants in >=2 CNO patients were included in the candidate list and variants manually checked using Integrative Genomics Viewer (IGV).

Results
After filtering low-quality, synonymous, common variants, 17,293 variants were filtered against a database of 581 known inflammatory genes. 350 rare variants in 201 genes predicted to be intolerant to variance were identified. After excluding those present in one individual, IGV inspection and application of CADD phred scores, a candidate list of 25 genes remained. The same variant in IL17RA, NLRP1 and KMT2D was present in 3 unrelated individuals (Table 1). IL17RA belongs to the Th17 pathway which is involved in psoriasis pathogenesis. NLRP1 is implicated in several autoinflammatory diseases including psoriasis. None of the individuals carrying these variants in IL17RA or NLRP1 have psoriasis; 1 with IL17RA variant has 1st-degree family history of psoriasis. Two additional individuals carry variants in IL23R suggesting Th17 pathway may be important in a proportion of children with CNO.

Conclusions
IL17RA +/- Th17 pathway and NLRP1 provide targets for further investigation in CNO.

Figure

Sample	Gene	Variant	Effect	CADD	CNO MAF	gnomAD MAF	OR	p-value
16 37 42	IL17RA	22-17586757-T>C	Nonsynonymous p.W320R	24.5	0.04	0.0034	11.06	0.003
5 9 38	NLRP1	17-5462417-C>A	Nonsynonymous p.Q533H	26.2	0.04	0.0058	6.47	0.01
2 11 21	KMT2D	12-49434409-G>A	Nonsynonymous p.P2382S	21.3	0.04	0.0056	6.75	0.01

(21A162) ABSTRACT 14 PREMIER POSTER 8

Treat to Target Pathway (T2T) in inflammatory Arthritis Do certain groups respond to treatment differently?

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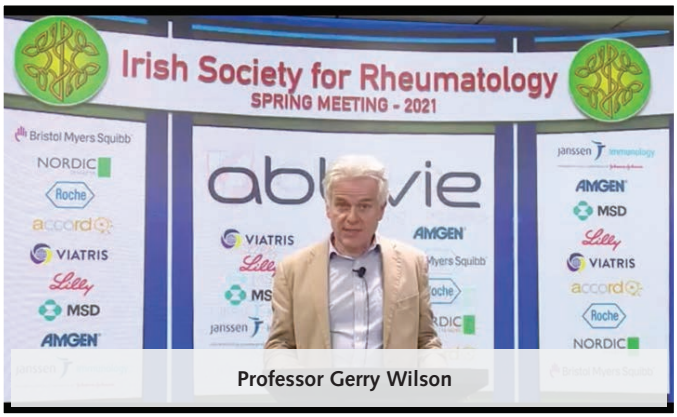
Introduction
There is established evidence that treat to target strategy in inflammatory arthritis helps achieve early remission rates or low disease activity. This approach is more effective for improved outcomes at no additional costs and more likely to achieve rapid and sustained disease control. It is important to aim for early diagnosis to limit the structural damage that occurs with prolonged inflammation. Commencing disease modifying anti-rheumatic drugs (DMARD) therapy and glucocorticoids as early as possible and titrating therapy as appropriate improves clinical outcomes.

Aims/Background
Aim of this study was to analyze ACR20 response within different subgroups of inflammatory Arthritis patients enrolled in Treat to Target program

Method
Data collection was performed by assessing electronic medical records of 374 inflammatory arthritis patients who participated in Treat to Target pathway for inflammatory arthritis between 2014 to 2020.
In total 374 patients were enrolled in treat to target inflammatory pathway led by Rheumatology ANP with consultant supervision. Majority of the patients had diagnosis of Rheumatoid arthritis as per ACR/Eular criteria. 213(51%) were seropositive RF+, 83(19.9%) were seronegative RF-, 44(10.5%) were diagnosed as

Speakers at the Spring Meeting 2021

Professor Geraldine McCarthy



Professor Gerry Wilson

The Bryan Alton Medal was presented to Prof Geraldine McCarthy MD, FRCPI Consultant Rheumatologist Mater Misericordiae University Hospital on the 1 July 2021 at the Institute of Medicine

psoriatic arthritis, and 34(8.1%) were labelled as undifferentiated inflammatory arthritis. In terms of age and gender, 158(42%) were under 50, and 216(58%) were aged 50 and over, majority females 207(55%). Smoking status 118(32%) current, 211(56%) never, 45(12%) ex-smokers. DMARD started at baseline was Methotrexate only and Starting dose was 15mg for all patients. 326(88%) were on oral methotrexate and only 48(12%) were on SC form between weeks 1-20. ACR 20 response was analysed for these subgroups with majority (61%) seen at week 6 for their visit 1 after starting T2T pathway while all patients seen by week 20.

Results
ACR 20 response was calculated for all subgroups enrolled in T2T program. The results showed that ACR 20 response rate was same among patients aged under and over 50(67% responders). There was no significant difference in ACR 20 response among females and males (66.9% response) both groups. In terms of seropositivity, 75% responded to treatment in RF+ group vs 60% in RF-group. Higher response rates were seen among not current smokers vs active smokers(70%vs65%). ACR 20 response was greater in patients on Sc form of methotrexate. Overall, 65 % achieved remission within 15 months of starting T2T pathway while remaining achieved low disease activity. Further analysis and discussion will follow.

Conclusions
Treat to target strategy in inflammatory arthritis help rheumatologists identify specific subgroups within T2T cohort who respond better to treatment and achieve remission or low disease activity.

(21A101) ABSTRACT 15 **REGULAR POSTER 9**

Giant Cell Arteritis Diagnostic Pathway- Audit and Service Evaluation Project at Mater Misericordiae University Hospital.

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Introduction
Giant cell arteritis (GCA) is a challenging clinical diagnosis. Failure to diagnose and treat GCA promptly can result in visual loss or stroke. Current guidelines advise that all patients should have a diagnostic test: temporal artery ultrasound (TAU) OR temporal artery biopsy (TAB) to confirm the diagnosis.

Aims/Background
1. To evaluate the diagnostic pathway for GCA at MMUH as compared to the latest BSR GCA guidelines (2020) and the EULAR Large vessel vasculitis guidelines (2018).
2. To determine the sensitivity and specificity of TAU and TAB at MMUH

Method
All patients who underwent TAB (n=20) and TAU (n=66) at MMUH in 2020 were included. The diagnostic pathway was evaluated as measured against the BSR and EULAR standards. The sensitivity and specificity of TAU and TAB at MMUH was calculated

Results
1. 85% of patients with suspected GCA at MMUH met the EULAR standard which states that every patient should undergo a confirmatory diagnostic test.
2. As axillary artery US is not performed at MMUH at present, only 20% of patients met the BSR standard which stipulates that either temporal and axillary ultrasound OR biopsy should be performed in all cases.
3. Interestingly the audit highlighted the fact that ophthalmology was unaware of vascular ultrasound and was referring patients directly for TAB
4. Performance of TAU at MMUH, the sensitivity of TAU at MMUH was higher than that reported in the TABUL study but lower than results from a meta-analysis and SLR reported by Duftner et al see Table 1

Conclusions
The MMUH GCA pathway performed well against the EULAR GCA guidelines but less well against BSR guidelines due to the lack of axillary artery US being performed routinely. We plan to promote the pathway amongst service users. The results of the sensitivity and specificity of TAU and TAB will help clinicians inform their diagnosis

Figure

Table 1

	MMUH	TABULE STUDY	EULAR SLR
BIOPSY SENSITIVITY (%)	22	39	NA
BIOPSY SPECIFICITY (%)	100	100	NA
ULTRASOUND SENSITIVITY (%)	64	54	77
ULTRASOUND SPECIFICITY (%)	92	81	96

(21A102) ABSTRACT 16 **REGULAR POSTER 10**

Integrated laboratory abnormality profiles of upadacitinib with up to 4.5 years of exposure in patients with rheumatoid arthritis treated in the SELECT phase 3 program

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Introduction
Safety and efficacy of Upadacitinib (UPA), an oral Janus kinase inhibitor approved for rheumatoid arthritis (RA), was evaluated across a spectrum of patients (pts) with RA in the phase 3 SELECT clinical program.1,2,3

Aims/Background
Safety and efficacy of Upadacitinib (UPA), an oral Janus kinase inhibitor approved for rheumatoid arthritis (RA), was evaluated across a spectrum of patients (pts) with RA in the phase 3 SELECT clinical program.1,2,3 This study describes long-term laboratory

profiles (cut-off date: June 30, 2020) associated with UPA, adalimumab (ADA), & methotrexate (MTX) in pts with RA.

Method

Laboratory data from 6 randomized controlled UPA RA trials were analysed. The proportions of pts experiencing potentially clinically significant changes (single time-point) were summarised for the following1,2:

- pooled UPA 15 mg once daily (QD) (UPA15; 6 trials),
- pooled UPA 30 mg QD (UPA30; 4 trials),
- ADA 40 mg every other week (1 trial),
- MTX monotherapy (1 trial).

Pts received UPA with/without background conventional synthetic disease-modifying antirheumatic drugs. Treatment-emergent adverse events are reported as exposure-adjusted event rates (events/100 pt-years [E/100PY]). Toxicity was graded per OMERACT criteria, or NCI CTCAE for creatine phosphokinase (CPK) and creatinine.

Results

4413 pts received ≥1 dose of UPA. Exposures comparable between treatment groups (Table 1). Proportions of pts with Grade (Gr) 3/4 decreases in hemoglobin were highest with UPA30 and MTX (Table 1). Rates of anemia (reported by the investigator) were comparable between UPA15, ADA, and MTX groups (Figure 1); the frequency of UPA-treated pts who discontinued due to anemia was low in all arms. Gr 3/4 decreases in neutrophils and lymphocytes with UPA were dose-dependent and higher vs ADA or MTX. Discontinuations due to neutropenia/lymphopenia were rare (<0.1%). Transaminase elevations were more frequent with UPA & MTX vs ADA; however, the proportion of pts who discontinued due to increases in ALT/AST were comparable between UPA15 & ADA, and numerically higher with UPA30 & MTX. CPK elevations were more frequent with UPA & mostly asymptomatic. 1 case of rhabdomyolysis in the UPA30 group was unrelated to study drug (attributed to influenza) (Figure 1).

Conclusions

Long-term analysis of UPA-treated RA Pts showed dose-dependent relationships for several laboratory abnormalities. Incidences of these with UPA15 were typically higher than with ADA but similar to MTX (except increased CPK elevations). Treatment discontinuations due to laboratory abnormalities were infrequent and similar across treatment groups.

Figure

Table 1. Pts with potentially clinically significant laboratory changes

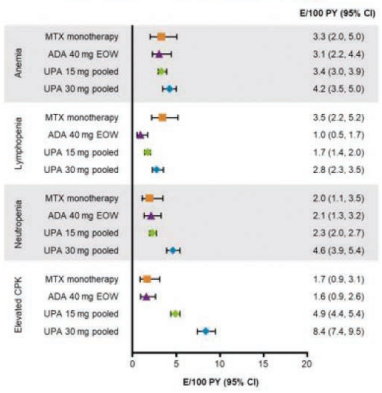
Variable, n (%)	MTX monotherapy (n=314; 637.4 PY)	ADA 40 mg EOW (n=579; 1051.8 PY)	UPA 15 mg QD (n=3209; 7023.8 PY)	UPA 30 mg QD (n=1204; 3091.6 PY)
Mean (SD) exposure, weeks	106 (67)	95 (70)	114 (64)	134 (66)
Median (range) exposure, weeks	144 (1, 221)	118 (2, 231)	136 (0, 232)	160 (0, 231)
Hemoglobin, g/L				
Gr 3 (70- <80 or decreased 21- <30)	28[a] (9.0)	24[b] (4.2)	254[c] (7.9)	169[d] (14.2)
Gr 4 (<70 or decreased ≥30)	16[a] (5.1)	16[b] (2.8)	101[c] (3.2)	78[d] (6.5)
Neutrophils, 10^9/L				
Gr 3 (0.5- <1.0)	3[a] (1.0)	3[b] (0.5)	40[c] (1.2)	37[d] (3.1)
Gr 4 (<0.5)	1[a] (0.3)	1[b] (0.2)	10[c] (0.3)	5[d] (0.4)
Lymphocytes, 10^9/L				
Gr 3 (0.5- <1.0)	74[a] (23.7)	53[b] (9.2)	802[c] (25.1)	423[d] (35.5)
Gr 4 (<0.5)	5[a] (1.6)	3[b] (0.5)	75[c] (2.3)	47[d] (3.9)
ALT, U/L				
Gr 3 (3.0- 8.0 × ULN)	26[a] (8.3)	13[b] (2.3)	152[c] (4.8)	71[d] (5.9)
Gr 4 (>8.0 × ULN)	5[a] (1.6)	4[b] (0.7)	26[c] (0.8)	10[d] (0.8)
AST, U/L				
Gr 3 (3.0- 8.0 × ULN)	15[a] (4.8)	9[b] (1.6)	101[c] (3.2)	36[d] (3.0)
Gr 4 (>8.0 × ULN)	1[a] (0.3)	5[b] (0.9)	18[c] (0.6)	8[d] (0.7)
CPK, U/L				
Gr 3 (>5.0- 10.0 × ULN)	2[a] (0.6)	3[b] (0.5)	65[c] (2.0)	36[d] (3.0)
Gr 4 (>10.0 × ULN)	0[a] (0)	3[b] (0.5)	27[c] (0.8)	15[d] (1.3)
Creatinine, mg/dL				
Gr 3 (>3.0- 6.0 × ULN)	0[a] (0)	1[b] (0.2)	3[c] (<0.1)	2[d] (0.2)
Gr 4 (>6.0 × ULN)	0[a] (0)	4[b] (0.7)	8[c] (0.3)	1[d] (<0.1)

[a]n=312, [b]n=576, [c]n=3201, [d]n=1199. [a]n=193, [b]n=192, [c]n=1195, [d]n=196. [a]n=197

ULN, upper limit of normal

Figure

Figure 1. TEAEs of special interest in pts treated with UPA, MTX, and ADA



MTX: n=314, PY=637.4; ADA 40 mg EOW: n=579, PY=1051.8; UPA 15 mg pooled: n=3209, PY=7023.8; UPA 30 mg pooled: n=1204, PY=3091.6

[a]Pts who switched from placebo, ADA, or MTX to UPA were included in the UPA analysis set from the start of UPA, while those who switched from UPA to ADA were included in the ADA analysis set from the start of ADA and were censored at time of switch. MTX monotherapy was censored at time of rescue to combination therapy (addition of UPA)

ADA, adalimumab; CI, confidence interval; CPK, creatine phosphokinase; E/100 PY, events/100 pt-years; EOW, every other week; MTX, methotrexate; pt, patient; PY, pt-years; TEAE, treatment-emergent adverse event; UPA, upadacitinib

(21A104) ABSTRACT 17 **REGULAR POSTER 11**

Ultrasound Elastography in assessment of Methotrexate Hepatotoxicity in Rheumatology Patients

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Introduction

Methotrexate (MTX) is the first line drug of choice when treating many rheumatic diseases. MTX is associated with a number of adverse effects including MTX-induced hepatotoxicity, in particular fibrosis and cirrhosis. Evidence of hepatoxicity in patients taking MTX can lead to a change in medication for these patients. Thus far there is little literature to guide the use of ultrasound elastography for monitoring hepatotoxicity in rheumatology patients.

Aims/Background
This study aimed to assess the role of ultrasound elastography (FibroScanTM, Echosens) for monitoring hepatotoxicity in patients on methotrexate.

Method
Of 287 patients on long-term MTX (2017-2020), 47 were assessed with FibroScan. Medical records of these patients were reviewed regarding MTX and risk factors for hepatoxicity. Phone interviews were conducted with all 6 patients found to have moderate to severe fibrosis, all of whom initially opted to stop MTX.

Results
Table 1 summarises findings in all scanned and in the 6 with moderate to severe fibrosis who stopped MTX. After discontinuing MTX, three transitioned smoothly to anti-TNF or plaquenil. Three had arthritis flares and toxicities to alternative medications, with two settling on JAK inhibitors. One failed two biologics, so after a year and a repeat normal FibroScan, MTX was recommenced, and a 3rd FibroScan a year later remains normal. She has Sphincter of Oddi syndrome. Her prior good rheumatoid control has not yet been regained.

Conclusions
One in eight patients on long term MTX had results suggesting significant liver fibrosis, with half suffering a major setback when they opted to stop MTX. The high prevalence of metabolic syndrome features in the whole group reflects the general population, and was even higher in those with significant fibrosis. Numbers were small, but there was just a weak correlation with cumulative MTX dose. Rheumatologists and their patients have to weigh up the risk:benefit ratio of methotrexate in this setting, while also tackling features of the metabolic syndrome to enhance liver and general health.

Figure

Parameters	All at 1st Scan	Fibrosis at 1st scan
Age yrs	67 ± 9.1	66.3 ± 7.6
Gender female	78.70%	100%
MTX yrs	14.1 ± 6.2	14.5 ± 6.9
MTX weekly dose mg	17.4 ± 4.9	15.83 ± 5.16
MTX cumulative dose mg	12.4 ± 5.7	13.45 ± 7.64
Liver Stiffness kPa	5.97 ± 2.39	10.17 ± 1.73
Fatty Liver CAP dB/m	252.88 ± 28.36	263 ± 55.8
% with No Fatty Liver	29.80%	16.66%
% with Mild Fatty Liver	27.70%	16.66%
% with Mod Fatty Liver	23.4%%	33.33%
% with Severe Fatty Liver	21.30%	33.33%
% with No Fibrosis	76.60%	0
% with Mild Fibrosis	8.50%	0
% with Mod Fibrosis	4.34%	33.33%
% with Severe Fibrosis	8.7%	66.66%
% with DM	4.30%	33.33%
% with HTN Rx	21.30%	33.33%
% current or Prior Smokers	27.70%	16.66%
Alcohol Units/wk (range)	N/A (0-18)	1.8 ± 3.1 (0-8)
BMI kg/m^2	N/A	32.3 + 4
Total Cholesterol mmol/l	4.86 ± 1.12	4.95 ± 1.8
% on lipid lowering Rx	34%	50%

(21A108) ABSTRACT 18 **REGULAR POSTER 12**

Enrichment of a novel, pathogenic macrophage population with distinct transcriptional and metabolic signatures in Rheumatoid Arthritis synovial tissue

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Introduction
Synovial tissue macrophages are an exquisitely plastic pool of innate cells that significantly contribute to Rheumatoid Arthritis, yet the precise nature/function of macrophage subsets within the inflamed joint remains unexplored.

Aims/Background
Here we used multiparameter flow cytometry, RNA-seq, non-invasive fluorescent lifetime imaging microscopy (FLIM) metabolic imaging and functional analysis to fully explore the spectrum of distinct macrophage activation states residing within the synovium of RA and healthy individuals.

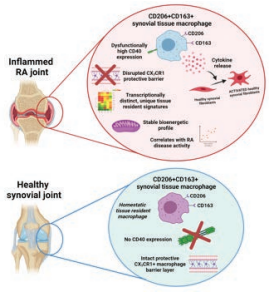
Method
RA, PsA, OA, Arthralgia and healthy-control synovial tissue biopsies and synovial fluid analysed via flow-cytometry: (CD40,-CD45,-CD64,-CD68,-CD163,-CD206,-CD253,-CCR4,-CCR7,-CXCR1,-CXCR3). CD206+CD163+ and CD206-CD163- macrophages sorted from RA synovial-tissue by FACSAria sorter; RNAseq, FLIM analysis and heathy-fibroblast experiments performed.

Results
A spectrum of macrophage activation states exists within the inflamed synovium. Within this spectrum, multidimensional single-cell analysis identifies enrichment of CD206+CD163+ synovial-tissue macrophages co-expressing CD40 in the RA synovial tissue compared to fluid ($p<0.05$), frequency of which are associated with increased disease-activity and treatment response.
CD206+CD163+CD40+ macrophages are enriched in RA synovial tissue compared to PsA/OA ($p<0.05$). CD206+CD163+ macrophages are present in healthy synovial-tissue, however, co-expression of CD40 is completely absent ($p<0.05$). In contrast, CX3CR1-expressing macrophages which form a protective synovial barrier at the synovial-lining in healthy synovium are depleted in RA, a phenotype that begins to disrupt prior to clinical manifestations of disease.
Bulk RNA-seq analysis indicates that CD206+CD163+ macrophages are transcriptionally distinct from synovial-tissue CD206-CD163- and RA polarised-macrophages, with unique tissue-resident gene signatures. Differing metabolic demands between CD206+CD163+/CD206-CD163- subsets was demonstrated by NAD(P)H FLIM analysis. Functionally CD206+CD163+ macrophages are potent producers of pro-inflammatory mediators (reversed by CD40-signalling inhibition) and induce a pathogenic phenotype in healthy synovial-fibroblasts which in turn can activate healthy-synovial fibroblasts, thus further contributing to the local inflammatory response.

Conclusions
We have identified a novel transitional population of tissue-resident

macrophages in the RA synovium which are transcriptionally and metabolically distinct and capable of contributing to disease pathology. Importantly this subset becomes activated early in RA disease pathogenesis and correlates with disease activity and response to treatment. Uncovering the molecular patterns and cues that transform this immunoregulatory macrophage population into a dysfunctional inflammatory activation state may provide opportunities to reinstate joint homeostasis in RA patients.

Figure



(21A109) ABSTRACT 19 **REGULAR POSTER 13**

Cardiovascular risk assessment in patients with rheumatic conditions in Northwest of Ireland, An Audit

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Introduction
Rheumatological conditions are associated with a considerably increased risk of morbidity and mortality from cardiovascular disease (CVD) compared to the general population. Systemic inflammation and a high prevalence of cardiovascular risk factors in this population play a role in accelerated atherosclerosis. Hypertension is a key modifiable risk factor contributing to increased CVD in patients with rheumatological conditions. Hypertension is underdiagnosed and undertreated in this population. EULAR guidelines state that hypertension should be managed in rheumatological conditions as it is in the general population. (1.) ACC/AHA guidelines state that hypertension should be treated with drug therapy when greater than 140/90 or 130/80 in high-risk individuals. (2.)

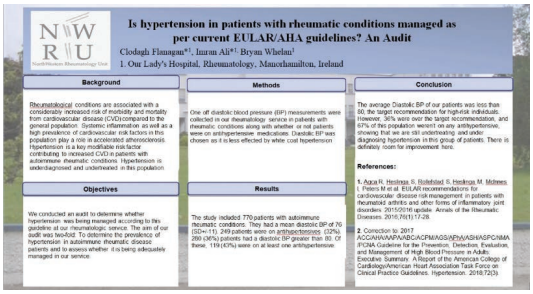
Aims/Background
We conducted an audit to determine whether hypertension was managed according to this guideline at our rheumatological service. Our audit aimed two-fold: To determine the prevalence of hypertension in rheumatological patients and assess whether it is adequately managed in our service.

Method
One-off diastolic blood pressure (BP) measurements were collected in our rheumatology service in patients with rheumatologic conditions, along with whether or not patients were on antihypertensives. Diastolic BP was chosen as it is less affected by white coat hypertension.

Results
The study included 770 patients with rheumatological conditions. They had a mean diastolic BP of 76 (SD+/-11). 249 patients were on antihypertensives (32%). 280 (36%) patients had a diastolic BP greater than 80. Of these, 119 (43%) were on at least one antihypertensive.

Conclusions
The average Diastolic BP of our patients was less than 80, the target recommendation for high-risk individuals. However, 36% were over the target recommendation, and 67% of this population weren't on any antihypertensives, showing that we are still undertreating and underdiagnosing hypertension in this group of patients. There is room for improvement here.

Figure



(21A110) ABSTRACT 20 **REGULAR POSTER 14**

COVID-19, Lupus and related diseases. Patients' experience in Northern Ireland – A web based cross-sectional survey of Patient Reported Outcomes.

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Introduction
Following the initiation of lockdown by the government in March 2020. Many SLE patients were advised to remain at home because of their clinically vulnerable status at the time. This was unprecedented, and the patients were often receiving contradictory information from several sources and were not able to be seen face to face in clinic when they were experiencing flares of their diseases.

Aims/Background
The objective of the study was to evaluate impact of the pandemic on patients with connective tissue diseases

Method
A web-based cross-sectional survey was completed in the Belfast health and social care trust

Results
There were 67 responses, with 1 omitted and 66 of them included in analysis. Most respondents had systemic lupus erythematous (SLE) 87.5%, followed by mixed connective tissue disease (MCTD) (7.7%), undifferentiated connective tissue disease (UCTD) (1.5%). 98% of patients were female, aged between 25 and 77 years old. 96.9% of the respondents were Caucasian which reflects the general population of Northern Ireland.
The shortened Warwick Edinburgh Mental Wellbeing Scale (WEMWBS)2 was utilised to assess mental wellbeing. 29.7% (N=19) had low mental wellbeing, 43.8% (N=28) moderate and 30% (N=13) high. Of those respondents within the low mental wellbeing category only 31.6% (N=6) exercised 20-30 minutes daily and 47.4% (N=9) did no exercise at all. However, within the high mental wellbeing category, 66.7% (N=12) exercised 20-30mins daily and only 5.6% (N=1) did no exercise.

Conclusions
The survey showed minimal levels of COVID-19 within the cohort surveyed with no hospitalisations, despite continuing

immunosuppressant therapies. Despite good accessibility to rheumatology services, patients felt that shielding advice was inconsistent between sources. The survey findings indicated that stopping medication can have a negative impact on disease control. This patient reported survey has established a definite link between low levels of exercise and low mental wellbeing. This has been replicated in other studies and reinforces the need for us as clinicians to be pro-active in terms of management. A link between deteriorating mental health and increased disease activity in SLE has also previously been reported4, however this survey did not specifically address this correlation.

(21A111) ABSTRACT 21 REGULAR POSTER 15

Cytokine synergy and glycolytic activity used to promote aggressive phenotype in FLS of children with Down's syndrome-associated arthritis.

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Introduction
Down's syndrome-associated arthritis (DA) is a more common and clinically distinct disease compared to juvenile idiopathic arthritis (JIA).

Aims/Background
This study aims to identify the underlying mechanisms involved in driving synovial fibroblasts (FLS) activation and destructive capacity with a particular focus on cytokine synergy.

Method
Primary DA FLS were isolated from synovial biopsies from children with DA. To examine the potential role of cytokine synergy, DA FLS were cultured with IL-17a (20ng/ml and 50ng/ml), IFN-g (10ng/ml and 50ng/ml) and GM-CSF (20ng/ml and 100ng/ml) in the presence or absence of TNF-a (0.1ng/ml). Culture supernatants were harvested and consequently IL-6, IL-8, MCP-1 and RANTES levels quantified by ELISAs. Leukocyte adhesion was assessed by leukocyte-DA FLS adhesion assays. Flow cytometric analysis was used to examine DA FLS adhesion molecules (VCAM-1, ICAM-1), chemokine receptors (CCR3, CXCR4) and IFN-g receptor expression. The two major energy pathways glycolysis (ECAR) and oxidative phosphorylation (OCR) were quantified by the Seahorse XFe96 Analyser following the same stimulations as before.

Results
TNF-a, IL-17a and IFN-g induced IL-6, IL-8, RANTES and MCP-1 with no effect observed for GM-CSF. TNF-a IL-17a, IFN-g and GM-CSF increased leukocyte adhesion to DA FLS. TNF-a and IFN-g upregulated cell-surface expression of ICAM-1, VCAM-1, CXCR3 and CXCR4 with no effect observed for IL-17a and GM-CSF. IFN-g potentiated the effects of TNF-a on IL-6 and MCP-1 while decreasing IL-8. This synergy was also demonstrated for ICAM-1, VCAM-1, CXCR3, CXCR4 expression. No synergistic relationships were observed for either IL-17a and GM-CSF. Finally, IFN-g downregulated IFN-g receptor expression with no effect observed for TNF-a, IL-17a and GM-CSF. Furthermore, synergy between TNF-a and IL-17a deters DA FLS from OCR and switches to ECAR instead. DA FLS are transformed from being quiescent to an energetic state increasing the ECAR:OCR ratio.

Conclusions
DA is a more common and aggressive form of inflammatory arthritis compared to JIA. DA FLS function is regulated by differential cytokine stimulation, with TNF-g and IFN-g demonstrating potent synergistic induction of adhesion, inflammatory and chemokine receptor expression. Meanwhile, cytokine synergy between TNF-a and IL-17a is used to favour glycolysis suggesting complex cytokine signalling pathway mediating these effects.

(21A114) ABSTRACT 22 REGULAR POSTER 16

Monitoring HbA1c and plasma glucose in patients with GCA/PMR – An Audit in Beaumont Hospital

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Introduction
EULAR/ACR recommendations address the importance of the determination of comorbidities in patients being treated for PMR and GCA, particularly diabetes and glucose intolerance.

Aims/Background
We conducted an audit to assess if our rheumatology service is in concordance with EULAR recommendations to determine the prevalence of diabetes and dyslipidaemia in our patient cohort.

Method
Due to difficulty identifying candidates with PMR or GCA, we used the 4S Dawn Database to extract all patients on Tocilizumab therapy during the period Oct 2010 - July 2021. Patients with PMR or GCA were extracted from this database.

Results
68 candidates were found to be on tocilizumab, 18 of them were included in the study as patients with PMR or GCA (figure 2). Following diagnosis, 44.4% underwent Hb1AC testing, 33.3% underwent plasma glucose testing, and 83% of patients underwent lipids monitoring (figure 1).

Conclusions
Surveillance of plasma glucose and HbA1c is suboptimal. Quality improvement regarding Hb1AC and plasma glucose testing is required due to the high incidence of glucose intolerance and diabetes in this patient group.

Figure

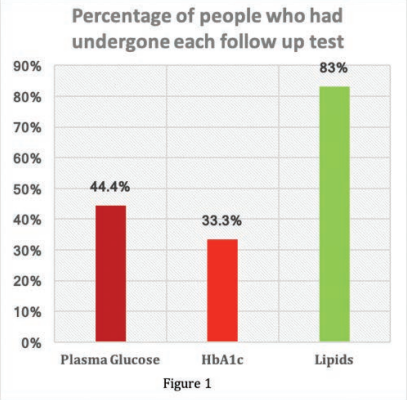

Figure 1

Figure

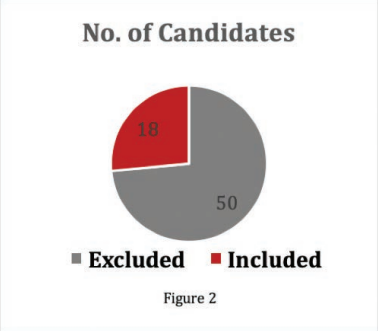

Figure 2

(21A120) ABSTRACT 23 REGULAR POSTER 17

Examining the inhibitory effects of Rapamycin on the inflammatory, invasive, and metabolic capabilities of IL-1B stimulated synovial fibroblasts in Rheumatoid Arthritis

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Introduction
In RA fibroblast-like synoviocytes (RAFLS) metabolism is a key contributor to their pathogenic phenotype in RA. Currently there is limited information on the metabolic shift and glycolytic enzyme expression in RAFLS in response to mTOR pathway stimulated by IL-1B.

Aims/Background
The aim of this work was to investigate the effect of metabolic reprogramming on IL-1B regulation of stromal cell activation and invasiveness in RA and to see whether rapamycin can inhibit these effects.

Method
Primary RA synovial fibroblasts (RAFLS) and human umbilical vein endothelial cells (HUVEC) were cultured with IL-1B (2 ng/mL) alone or in combination with the metabolic inhibitor rapamycin (100nM). Pro-inflammatory cytokines IL-6, MCP-1 and Rantes were quantified by real-time PCR and ELISA. Cellular adhesion and network formation were quantified by adhesion binding assays and Matrigel invasion assays. pS6 (a surrogate marker of the mTOR pathway) was quantified by flow cytometry. Cellular bioenergetics was assessed using the Seahorse-XFe-technology and key glycolytic genes (HK2, PKM2, G6DP) were quantified by real-time PCR.

Results
IL-1B significantly induced secretion of IL-6 ($p<0.05$), MCP-1 ($p<0.01$) and Rantes ($p<0.01$) from RAFLS. IL-1B induced leukocyte adhesion to RAFLS ($p=0.062$) and HUVEC ($p=0.051$), in addition to an increase RAFLS and HUVEC network formation. This was accompanied by a change in the cellular bioenergetic profile of cells, where IL-1B increased the ECAR/OCR ratio in favour of glycolysis for RAFLS ($p<0.05$) and HUVEC, and induced the % frequency in the cell surface expression of pS6 on RAFLS. Rapamycin inhibited IL-1B-induced leukocyte adhesion and network formation in RAFLS ($p<0.05$; $p<0.05$ respectively) and HUVEC ($p<0.05$). Rapamycin inhibited IL-1B-induced Rantes secretion ($p<0.05$), no effect observed for IL-6 and MCP-1. This was accompanied by a shift in the metabolic profile from a glycolytic/energetic state back towards a more quiescent state.

Conclusions
Rapamycin inhibits IL-1B-induced pro-inflammatory mechanisms in key stromal cells involved in the pathogenesis of RA. Targeting metabolism may lead to new potential therapeutic or adjuvant strategies, particularly for those patients who have sub-optimal responses to current treatments.

(21A121) ABSTRACT 24 REGULAR POSTER 18

Telephone Clinic Appointments are associated with Excessive DMARD dosing for Stable Inflammatory Arthritis Patients during the COVID-19 era; a cause for concern

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Introduction
COVID 19 restrictions curtailed standard clinical practice by requiring remote consultations. We examined the efficacy/safety of Telephone consultations in current clinical practice
Aims/Background
To compare the efficacy/safety of the Rheumatology telephone (TEL) versus standard face to face (FTF) consultations at the inflammatory arthritis Treat To Target (TTT) clinic

Method
Patients were selected on predetermined clinical criteria to either TEL or FTF consultations following the 1st pandemic wave in 2020. The frequency of DMARD treatment escalations for active disease versus de-escalations for stable disease were recorded along with clinical outcomes. Treatment data was compared retrospectively with TTT clinics occurring prior to the pandemic (2017). Differences in treatment escalations/de-escalations between 2017 and 2020 were analysed by Chi Square. To account for small sample size type 2 error, a preliminary P value < 0.1 was considered both statistically significant and an indication of a need for future validation with a larger study population.

Results
37 (FTF 11, TEL 26) consultations in 2020 were compared with 45 (45 FTF) 2017 consultations. A significant difference was observed in treatment de-escalation for stable disease between 2020 (3%, n=1) and 2017 (11%, n = 5). Chi Square P < 0.1, corrected for Type 2 error). No difference was observed in treatment escalation for active disease between 2020 (35%, n=13) and 2017 (35% 15)

Conclusions
This is a preliminary analysis, requiring further validation using a larger cohort. While no differences were seen in the frequency of treatment escalations in patients with active disease, telephone clinical

consultations are associated with reduced DMARD de-escalation for inflammatory arthritis. The use of telephone clinics may therefore be associated with prolonged or unnecessary immunosuppressive prescribing practices, leading to an increased risk for adverse clinical outcomes. Future protocol-driven de-escalations strategies for telephone consultations may mitigate clinical risk. Using our preliminary results we will now validate using a larger study cohort.

(21A122) ABSTRACT 25 **REGULAR POSTER 19**

Fatigue in Axial Spondyloarthropathy: Associations with Disease Activity and Functional Ability

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Introduction
Fatigue is a common symptom reported by patients with axial spondyloarthropathy (axSpA), which can affect patients' quality of life and limit daily activities. However, the impact of fatigue and the relationship with disease activity in axSpA is often overlooked, due to difficulties in capturing and quantifying this symptom.

Aims/Background
The aim of this study was to determine how fatigue relates to patient reported outcomes in axSpA.

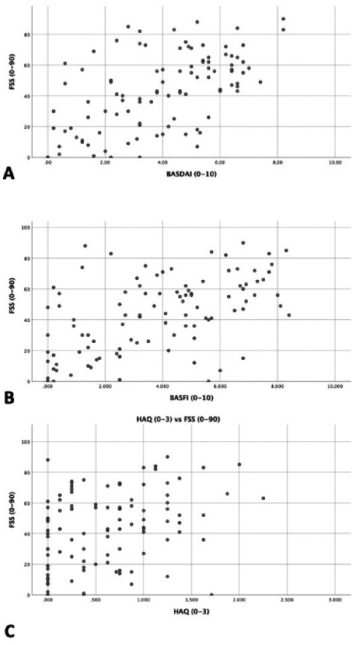
Method
Data from the axSpA DEXA study was extracted for the purposes of this analysis. Responses from 107 axSpA patients from St. James's Hospital were analysed using IBM SPSS Statistic version 26. Patient reported outcome scores (BASDAI, BASFI, HAQ) were correlated to the Fatigue Severity Scale (FSS). Distribution of data was assessed for normalcy with the Shapiro Wilk's test, which determined the correlation analysis used. Significance was indicated by a p value of <0.05.

Results
107 patients were enrolled made up of 94.4% (n=101) Caucasian with 81.3% (n=87) HLA-B27 positive. The mean age was 50.17 years, comprising 77.6% (n=83) males and 22.4% (n=24) females with mean duration of disease of 24.1 years. Means for patient reported outcomes were: BASDAI 3.90, BASFI 3.73, ASQoL 6.89, HAQ 0.61, FSS 42.71.
BASDAI, BASFI, HAQ and FSS scores were not normally distributed, as assessed by the Shapiro-Wilk test (p<0.05). Therefore correlation studies were done using Spearman's rank correlation coefficient. Visual inspection of the scatterplot of BASDAI, BASFI, HAQ vs FSS showed the variables had a directly proportional monotonic relationship.
There was a statistically significant, strong positive correlation between BASDAI and FSS (rs (101) = 0.548, p <0.01), BASFI and FSS (rs (102) = 0.523, p<0.01) and a moderate positive correlation between HAQ and FSS (rs (102) = 0.343, p<0.01).

Conclusions
These results indicate disease activity and functional ability are directly associated with fatigue severity in axSpA. Based on these findings, we believe that there is clinical utility in capturing fatigue levels via the FSS when managing patients with axSpA.

Figure

Figure 1: Visualisation of relationship between FSS and **A.** BASDAI (r_s=0.548), **B.** BASFI (r_s=0.523) and **C.** HAQ (r_s=0.343). All results significant at the p<0.01 level



Figure

Table 1: Characteristics of the study cohort and mean scores

	Total n (%)
n	107 (100%)
Males	83 (77.7%)
Females	24 (22.4%)
Age (years)	50.17
Disease duration (years)	24.1
Caucasian	101 (94.4%)
HLA-B27 +	87 (81.3%)
Uveitis	33 (30.8%)
Psoriasis	16 (15%)
Colitis	19 (17.8%)
NSAIDs	47 (43.9%)
DMARDs	9 (8.4%)
Biologic	66 (61.7%)
Patient Reported Outcomes	
BASDAI	3.90
BASFI	3.73
ASQoL	6.89
HAQ	0.61
FSS	42.71

Abbreviations: HLA-B27 -human leukocyte antigen B27; NSAIDs -non-steroidal anti-inflammatory medications; DMARDs -disease modifying anti-rheumatic drugs; BASDAI - Bath Ankylosing Spondylitis Disease Activity Index, BASFI - Bath Ankylosing Spondylitis Functional Index, ASQoL - Ankylosing Spondylitis Quality of Life Scale, HAQ - Health Assessment Questionnaire, FSS - Fatigue Severity Scale

(21A125) ABSTRACT 26 **REGULAR POSTER 20**

Symptomatic Hypermobility in children and young people: a systematic scoping review

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Department(s)/Institutions
Trinity College Dublin Children's Health Ireland University of Manchester and Manchester University NHS Foundation Trust Great Ormond Street Institute of Child Health, University College London Funded by the National Children's Research Centre (NCRC)

Introduction
Symptomatic Hypermobility is a term used to describe symptoms, thought to be associated with joint hypermobility. Other terms used include hypermobile Ehlers Danlos Syndrome (hEDS) and Hypermobility Spectrum Disorder (HSD). Musculoskeletal complaints are the most commonly associated features of joint hypermobility, however, most now recognise that Symptomatic Hypermobility can be represented by a spectrum of wide-ranging multisystem symptoms.

Aims/Background
The objective of this systematic scoping review was to identify the reported clinical characteristics associated with Symptomatic Hypermobility in children and young people and to systematically map the clinical characteristics in an age and developmental context.

Method
This scoping review was conducted using the Preferred Reporting Items for Systematic reviews and Meta-Analyses extension for Scoping Reviews (PRISMA-ScR). Searches were conducted in EMBASE, Medline, CINAHL, Web of Science and the Grey literature. Studies of children and young people from birth to 24 years with a confirmed diagnosis of Symptomatic Hypermobility, using internationally recognised criteria or equivalent diagnoses were included. Title and abstract screening and full text reviews were carried out by two independent reviewers, with disputes resolved by a third reviewer. Data extraction and analysis were conducted using an iterative process.

Results
The search identified 1619 studies published from 1967 to 2021, of which 164 articles were included (n=4554). Diagnostic criteria, outcome measures, and study settings were highly heterogenous. The main study designs were reviews (32%), case reports (24%) and cross sectional (21%) and 1.2 % were longitudinal. The Beighton Score was frequently used (49%), but rarely standardised (7%). Outcome measures varied with clinical setting. There was a wide variation in clinical characteristics reflecting 17 different clinical domains. Musculoskeletal symptoms were the most prevalent in all age groups, however, other domains such as cardiovascular were associated with specific age groups in particular early adolescence to young adulthood.

Conclusions
The clinical characteristics of Symptomatic Hypermobility have been mapped by age and development in this review. The use of standardised and age-appropriate outcome measures may help clinicians to identify presenting symptoms in domains beyond the musculoskeletal, within a multidisciplinary framework, where physiotherapists often play a key role.

(21A126) ABSTRACT 27 **REGULAR POSTER 21**

Latent tuberculosis infection (LTBI) in rheumatology patients in Beaumont Hospital- A five-year review

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Introduction
In our institution, rheumatology patients are routinely screened for latent tuberculosis (LTBI) prior to immunosuppression with Interferon-Gamma Release Assays (IGRAs).

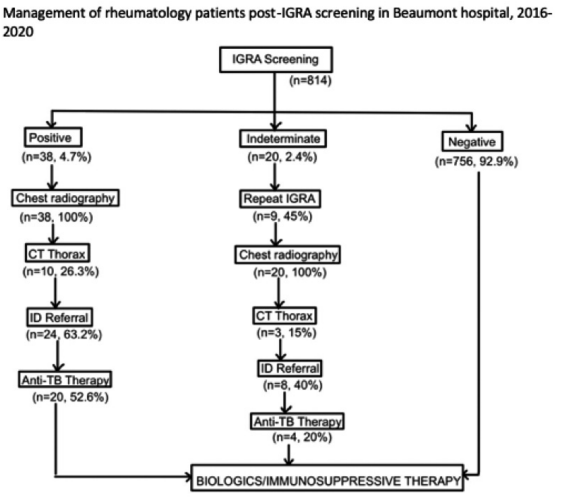
Aims/Background
To retrospectively review the frequency and management of positive and indeterminate IGRA in rheumatology patients from 2016 to 2020.

Method
Details of IGRA results and indications for testing from 1st January 2016 to 31st December 2020 were obtained from laboratory records. Patient details and subsequent management of positive and indeterminate IGRAs were obtained from the patient information system.

Results
Of 814 patients (median age 54 years, range 17-92, interquartile range 12), who undergone IGRA screening, 498 (61%) were females, 563 (69%) were tested prior to commencement of biologics and 251 (31%) on clinical suspicion for LTBI. Thirty-eight patients (twenty-two male, 57.9%) of whom thirty-two (84.2%) were Irish had positive IGRA results. These included patients with rheumatoid arthritis (n=21,55.3%), psoriatic arthritis (n=8, 21%) and other conditions (n=9, 23.7%). Follow-up included chest radiography (n=38) and CT thorax (n=10) which showed no evidence of tuberculosis. Twenty-four patients (63.2%) with positive IGRAs were referred to Infectious diseases (ID) specialists for further management and twenty (52.6%) were commenced on anti-tuberculosis therapy. Twenty Irish patients (eight males, 40%) had initial indeterminate IGRAs, of whom four were diagnosed for LTBI and treated with anti-tuberculosis therapy. These included patients with rheumatoid arthritis (n=9, 45%) and other conditions (n=11,55%). Of the twenty patients, sixteen were prescribed prednisolone therapy. LTBI was outruled in four patients on high dose prednisolone and five on low dose prednisolone because of normal chest-radiography, CT thorax and further ID specialist consultation. LTBI was outruled in the remaining seven on high dose prednisolone upon negative repeat IGRA testing.

Conclusions
Our reported 4.7% prevalence of LTBI in this population is in line with published reports (5-10%). The prevalence of biologic prescribing and burden of LTBI in patients with rheumatic diseases is poorly described in Ireland. Prospective followup of this patient population is required to define the ongoing LTBI burden and optimal pathways for IGRA testing and patient management

Figure



(21A127) ABSTRACT 28 **REGULAR POSTER 22**

An Audit of Practice Demonstrating Preventable Causes of Foot Osteomyelitis, Septic Arthritis and Bacteraemia in Rheumatology Patients Within the Belfast Trust

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Department(s)/Institutions
Rheumatology Department Belfast Health & Social Care Trust, Podiatry Department Belfast Health & Social Care Trust

Introduction
At the start of the COVID-19 pandemic many face-to-face reviews were reduced. This coupled with the fact that patients were reluctant to attend hospital resulted in delayed treatment of foot ulceration.

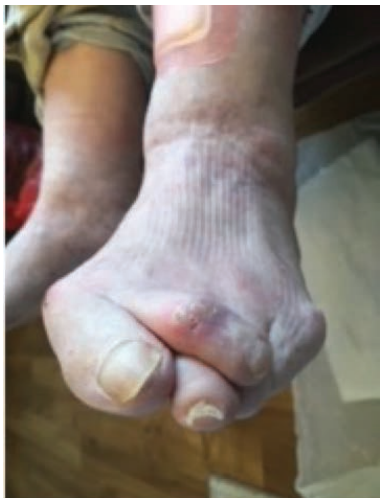
Aims/Background
The prevalence of foot ulceration in adults with rheumatoid arthritis (RA) (US,UK, Netherlands) is 10-13%. Results are similar in RA and Psoriatic Arthritis patients in the Northern Ireland Rheumatology Gain Audit (2018). Patients on DMARDs and biological therapy are particularly at risk of infection and the cardinal signs can be masked. Since the start of the pandemic, we noted an increase in infected foot ulcers that required hospital admissions due to the following:
1. Osteomyelitis
2. Septic arthritis
3. Bacteraemia.
These were especially increased in patients who are on biologics.

Method
We reviewed all foot ulcer cases over a 9-month period and selected those which led to medical input or hospital admission. From the 15 cases identified 5 were highlighted as fulfilling one of the above criteria.

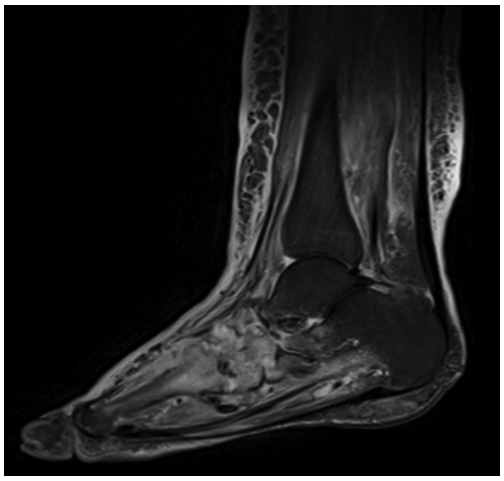
Results
Of the 5 patients identified, 3 were female and 2 were male. The mean age was 73. All had a background of Seropositive Rheumatoid Arthritis (SPRA), were on biologic therapy and had chronic foot ulceration which was present for at least 6 months. 80% had osteomyelitis and septic arthritis, 40% had a bacteraemia. Review demonstrated a lack of communication between health professionals, no routine foot examination prior to biologic infusions and x-rays were not always timely despite clinical bony involvement. Wound swabbing was also not always arranged and patients were often not aware of the implications of foot ulceration. These were all opportunities missed.

Conclusions
We have identified preventable causes of the aforementioned criteria and have put the following actions in place:
1)Shared learning across the trust with all members of the multidisciplinary team,
2)Created a poster as an aid memoir for staff and patients about the importance of foot examination,
3)Developed a patient information leaflet to increase awareness of the importance of foot care especially for those on immunosuppressant drugs,
4)Rolled out a GP education programme.
It is hoped that this will reduce the incidence of these complications in the future.

Figure



Figure



(21A128) ABSTRACT 29 **REGULAR POSTER 23**

Effectiveness of ultrasound guided versus blind glucocorticoid injection in the treatment of first carpometacarpal joint in patients attending St. James's hospital, Ireland.

Author(s)
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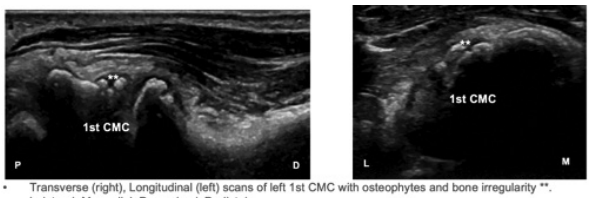
Introduction
Osteoarthritis is a common and debilitating disease. The first carpometacarpal joint (CMC1) is one of the most frequently involved. Intra-articular glucocorticoid injections are frequently used. Ultrasound guidance can facilitate injection accuracy. Figure1

Aims/Background
To evaluate the effectiveness of ultrasound-guided versus blind approach to intra-articular injection to CMC1, using the Australian Canadian osteoarthritis hand index (AUSCAN).

Method
An observational descriptive study was conducted at St James's hospital between Jan-July 2021. Adult patients diagnosed with symptomatic first thumb (CMC) osteoarthritis whom failed conservative measures were included. The injection consists of 20mg of depomedrone with a local anaesthetic, 0.5 ml 1 % lidocaine. All the injections were performed by an experienced physicians either using ultrasound or anatomical land-mark.

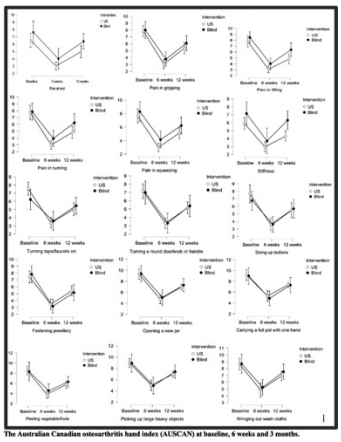
Results
There were 33 patients enrolled. The mean age was 63 years. Most were female (n=28, 84.8%) and about 72.7% (n=24) were non-smoker. 97% (n=32) were right-handed and 3% (n=1) left-handed (3%). The mean duration of CMC1 pain was 10 months (SD=2.5). 36.4% (n=12) and 45.5% (n=15) of participants had not previously used a hand splint or had a glucocorticoid injection to CMC1. 69.7% (n=23) had a right CMC1 injection. 60.6% (n=20) had ultrasound-guided injection and 39.4% (n=13) had the blind approach. Both groups achieved a statistically and clinically significant level of change in AUSCAN score at week 6 ($P \leq 0.05$) with a recurrence of symptoms at week 12 ($P \leq 0.05$) at the subgroup level, at both intervals the AUSCAN scores were better than baseline ($P \leq 0.05$). Figure2. There was no difference between the two groups regarding baseline pain on the day of clinic presentation (mean VAS score; US group= 6.6 vs blind group= 7.5; P=0.18). No significant differences were identified between two groups in terms of changes from baseline to 6, baseline to 12 and between 6 to 12 weeks in pain, stiffness and hand function ($P > 0.05$).
Conclusions
No difference was found between performing ultrasound-guided and blind CMC1 injection on pain score, stiffness or function. The study supports the use of either approach for the management of CMC1 osteoarthritis. This may facilitate injection in a primary care setting to expedite care.

Figure



- Transverse (right), Longitudinal (left) scans of left 1st CMC with osteophytes and bone irregularity **. L: lateral, M: medial, P, proximal, D, distal

Figure



The Australian Canadian osteoarthritis hand index (AUSCAN) at baseline, 6 weeks and 3 months.

(21A131) ABSTRACT 30 **REGULAR POSTER 24**

Clinical Outcomes 7 Years After Starting Teriparatide In A Large Irish Osteoporosis Cohort

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Introduction
Teriparatide is recommended for up to two years in patients with osteoporosis at very high risk of fracture.

Aims/Background
The aim of this study was to determine the outcomes of patients with at least 7yr follow-up from starting teriparatide in a real world setting.

Method
A retrospective chart review was conducted on patients who received teriparatide therapy from 1/1/2011 to 1/9/2014. 114 patients were included. Demographics, diagnosis of osteoporosis, management of osteoporosis before and after teriparatide and outcomes after teriparatide including new fracture and mortality were examined.

Results
There were 93 women (82%) and 21 men (18%), median age 74 years. 103 (91%) patients had a vertebral fracture before commencing teriparatide. 62 (63%) patients received previous treatment for osteoporosis before teriparatide. 34 (30%) did not complete treatment. 43 (38%) patients died within 7yrs of starting teriparatide. 47(42%) patients had a new clinical fracture within 7yrs of starting teriparatide (n=112). Median time to fracture from teriparatide initiation was 42 months (IQR 23 -68). 27 (58%) of these were non-vertebral fractures. 7% patients had a new clinical fracture after 36 months of teriparatide. 12 (14%) patients did not receive anti-resorptive treatment after teriparatide. Seven patients in this group were diagnosed with a new fracture; two during teriparatide therapy, five after stopping teriparatide therapy.

Conclusions
This is the 1st study to provide 7 year outcomes of patients after starting teriparatide, 4 years longer than previously published. This cohort had a high burden of vertebral fractures. Most new fractures after teriparatide were non-vertebral. The incidence of non-

vertebral fractures after teriparatide was higher compared to large observational studies in both Europe and the US. Comparison with results of the core registration trials for bisphosphonates revealed a higher incidence of new clinical vertebral fractures in our study after 36 months of teriparatide than in both the placebo and alendronate groups in the Fracture Intervention Trial (7% in our study vs 2.3% in alendronate group, 5% in placebo group). Our data raises questions about the efficacy of teriparatide in unselected patients.

Figure

	No of cases	Percentage (%)
Gender (n=114)		
Male	21	18
Female	93	82
Age (n=114)		
30-39	1	
40-49	2	
50-59	8	
60-69	24	
70-79	51	
80+	28	
BMI (n=48)		
18.5 or less	2	4
18.5- 24.99	19	40
25.0-29.99	21	44
30+	6	12
Smoking (n=67)		
Yes	35	52
No	32	48
History of long term steroid therapy (n=92)		
Yes	20	22
No	72	78
Vitamin D status (n=54)		
Deficiency (<30nmol/L)	6	11
Insufficiency (30-50nmol/L)	16	30
Optimal (>50nmol/L)	32	59
Number of pre-existing co-morbidities (n=107)		
0	9	8
1	14	13
2	14	13
3	21	20
4	22	21
5	14	13
6	13	12
Pre-existing co-morbidities (n=107)		
Hypertension	31	
Rheumatoid arthritis	14	
Cardiovascular disease	13	
Hypothyroidism	11	
TIA/stroke	10	
Diabetes mellitus	7	
Hyperthyroidism	5	
Chronic Kidney Disease	5	
Coeliac disease	4	
Liver disease	2	

Table 1. Demographic and clinical characteristics of patients started on teriparatide therapy

Figure

Time to fracture after starting teriparatide therapy (n=47)	Vertebral	Non-vertebral	Total (vertebral and non-vertebral)
0-24 months	3* (3%)	11* (10%)	13 (12%)
0-6 months	1(1%)	*2 (2%)*	3 (3%)
7-12 months	0	*5 (5%)*	5 (5%)
13-18 months	0	*0*	0
19-24 months	2 (2%)	*4 (4%)*	6 (5%)
25-36 months	5 (4%)	5 (4%)	10 (9%)
37-48 months	2 (2%)	3 (3%)	5 (4%)
49-60 months	5 (4%)**	5 (4%)**	7 (6%)**
After 5 years (61 months +)	6 (5%)***	7 (6%)***	12 (11%)***

Table 2 Time to fracture during teriparatide therapy and during 6 month intervals for follow-up period. (*one case had both vertebral and non-vertebral fracture, ** 3 cases had both a vertebral and non-vertebral, *** one case had both vertebral and non-vertebral fracture)

(21A132) ABSTRACT 31 **REGULAR POSTER 25**

Audit of patient knowledge and awareness of "Sick Day Rules" in rheumatology patients on long term corticosteroid therapy

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Introduction
Rheumatic disease (RMD) patients treated with long-term glucocorticoids (GC) are at risk of developing adrenal insufficiency during treatment. Adrenal crises are life-threatening episodes which can be triggered by intercurrent illness or abrupt cessation of GC therapy. Patient knowledge of how to minimize risk of this happening (the "Steroid Sick Day Rules") is important.
Aims/Background
With this survey we aimed to assess the knowledge of RMD patients taking long term therapy regarding their risk of adrenal insufficiency secondary to longterm GC use and assess their understanding of the "sick day rules" regarding GC usage.

Method
The audit was registered with and approved by our hospital Clinical Audit Committee. RMD patients taking > 2.5 mg prednisolone daily for > 3 months were recruited from the rheumatology outpatient department in a Dublin Tertiary Care Hospital. Following consent, patients were invited to complete a 10 point questionnaire carried out face-to-face or via telephone call. The questionnaire recorded patient demographics, clinical diagnosis, and prednisolone equivalent dose of corticosteroid. The questionnaire also included questions about GC information and training, and a series of clinical scenarios to determine if patients would alter their GC dosing in situations such as active infection, gastrointestinal upset, and for medical or dental procedures.

Results
A total of 51 RMD patients on GC therapy were recruited to the study. Only 5.9% of patients reported that they had been counselled on the Sick Day Rules. 3.92% carried a steroid emergency card or MedicAlert bracelet. Few patients would increase their steroid dose appropriately in response to infection, vomiting or periprocedure (27.5%; 17.7%; and 7.2% respectively).

Conclusions
We demonstrate a significant deficit of patient knowledge and counselling around the precautions for long term GC use in rheumatic diseases. We suspect that our results may be generalisable to many other RMD units. We are currently reviewing our procedures around healthcare professional and patient education, issuing of information leaflets, emergency cards or MedicAlert bracelets etc. to at risk patients and will reaudit.

Figure

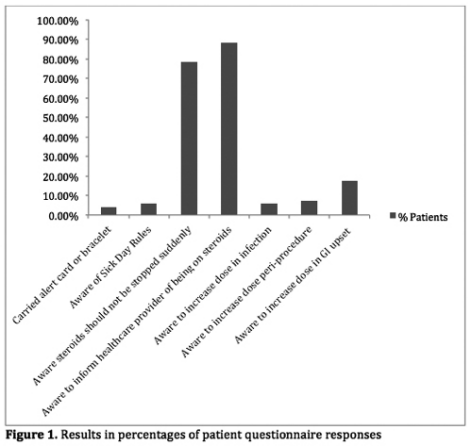

Figure 1. Results in percentages of patient questionnaire responses

Figure

	n	% (Range)
Age	18-30 years (1)	1.96%
	30-50 years (24)	47.1%
	50-70 years (15)	29.4%
	>70 years (11)	21.6%
Gender – females	41	80.4%
Prednisolone equivalent dose (median)	5mg	(2mg – 25mg)
Indication for long term steroid	Rheumatoid Arthritis (1)	1.96%
	Polymyalgia Rheumatica (7)	13.7%
	Vasculitis (11)	21.57%
	SLE (31)	60.8%
	Polymyositis (1)	1.96%

Table 1. Demographic characteristics, dose in prednisolone equivalent, and indication for long-term steroid.

(21A133) ABSTRACT 32 **REGULAR POSTER 26**

An Audit of Lipid Monitoring in Patients who are prescribed Janus Kinase inhibitors at St Vincent's Hospital.

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Introduction
Janus Kinase inhibitors are increasingly being to treat conditions in rheumatology. Rheumatoid Arthritis, Psoriatic Arthritis and Ankylosing spondylitis have all benefited from the advent of their use. Janus Kinase inhibitors reversibly inhibit kinase signalling for varying periods of the dosing cycle. Many cytokines such as interleukin 2, 6, 12, 15 and 23 use JAK STAT pathways. Thus Janus Kinase inhibitors via its mode of action across signal conduction of multiple cytokines have proved efficacious across multiple diseases in rheumatology.
There is a clinical consensus that patients being initiated on a Janus Kinase inhibitor should have lipid level monitoring prior to and after the initiation of therapy. We conducted an audit at St Vincent's University Hospital to assess lipid monitoring in patients prescribed Janus Kinase inhibitors.

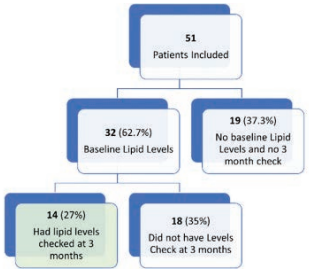
Aims/Background
There is a clinical consensus that patients newly prescribed Janus Kinase inhibitors are recommended to have lipids levels checked at 3 months post initiation of therapy. It is also recommended baseline lipids are checked if they have not been checked in the last year.
We aimed to audit lipid monitoring at St Vincent's Hospital in patients prescribed Janus Kinase inhibitors.

Method
A database of patients prescribed Janus Kinase inhibitors was used to identify patients. Patients who were seen in the public system and who had bloods taken by the hospital phlebotomy service were selected.

Results
51 total patients
32 patients had baseline lipid levels at the time of initiation of Janus Kinase therapy.
19 Patients whad no baseline lipid levels and no lipid levels checked at 3 months.
32 had baseline lipid levels.
Of this 32, 14 had lipid levels checked at 3 months.
Of this 32, 18 patients did not have lipid levels checked at 3 months.

Conclusions
A significant proportion of patients prescribed Janus Kinase inhibitors did not have adequate lipid monitoring. The department will re audit lipid monitoring in these patients and bring lipid monitoring in line with the clinical the accepted clinical consensus.

Figure



(21A134) ABSTRACT 33 **REGULAR POSTER 27**

Single Centre Experience of Use of Rasburicase for the Treatment of the Refractory Gout

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Introduction
Gout, a common inflammatory arthropathy characterized
by deposition of monosodium urate crystals in joints and other tissues, affects 2% adult men in
Western countries.

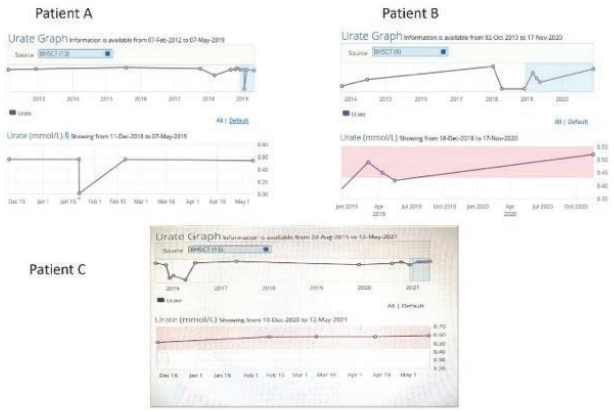
Aims/Background
Rasburicase, has a lower incidence of hypersensitivity reactions than the previously available nonrecombinant enzyme uricozyme. We don't have enough data about its use owing to the absence of clinical studies of rasburicase in patients with gout.

Method
In this retrospective observational study, we investigated use of rasburicase for refractory gout at our centre.
This has been used for 3 patients who had been intolerant or refractory to conventional urate lowering medications. Dose used was 0.2mg/kg IV once monthly with methylprednisolone used as premedication.

Results
• A. 64 with polyarticular erosive tophaceous gout was intolerant to higher doses of allopurinol, and it was ineffective at tolerable dose of 400mg per day. Febuxostat was also ineffective. Benzbromarone caused significant transaminitis. Finally, patient started on rasburicase in October 2018 and it resulted in significant reduction of urate and size of gout tophi. But this treatment had to be discontinued after 4 months due to severe allergic reaction.
• B.47 diagnosed with polyarticular tophaceous gout at the age of 28. Allopurinol was ineffective even at dose 700mg/day. Febuxostat was found ineffective. Rasburicase was started in April 2019. Although there was marked reduction in urate levels, but this drug had to be stopped after 3rd dose due to hypersensitivity type reaction.
• C.70 polyarticular crystal confirmed gout referred in 2010, was also positive for low titer RF and anti-CCP. Allopurinol and Febuxostat were stopped due to side effects. Benzbromarone stopped due to transaminitis. Rasburicase, started in November 2020, resulted in reduced frequency of gout attacks and also reduction in serum urate levels. But this benefit was lost over next 6 months. Because of loss of efficacy and ongoing side effects, Rasburicase was stopped in April 2021.

Conclusions
Although we have found Rasburicase effective in all cases in reducing serum urate levels and gout flares' frequency, but its longer use was limited due by significant allergic reactions and other side effects.
Larger multicenter prospective studies are needed to explore Rasburicase use in treating refractory gout.

Figure



(21A135) ABSTRACT 34 **REGULAR POSTER 28**

High Prevalence of Depression and Anxiety in Patients with RMD's

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Introduction
Depression and anxiety have higher a prevalence in patients with rheumatic and musculoskeletal diseases (RMD's) compared to the general population. [Odegard, 2007] The concomitant presence of these morbidities with RMD's can reduce engagement with services and limit rehabilitation participation. [Geenen 2012] It is therefore important health professionals treating individuals with RMD's can identify depression and anxiety. The development of holistic, personalised treatment strategies will mandate addressing these comorbidities if present. Such treatments require psychologists' input, which is currently lacking at the RMDU.
We conducted a prospective study to measure the prevalence of depression and anxiety in patients admitted to the RMDU with RMD's.

Aims/Background
To assess the prevalence and burden of depression and anxiety on patients attending the RMDU for rehabilitation using the HADS (Hospital Anxiety and Depression Scale) questionnaire.

Method
A prospective study involving 34 patients was performed over a 5-week period. The HADS questionnaire is a 7-question anxiety subscale combined with 7-question depression subscale patients use to self-report. [Zigmond 1983] It is a validated measure of anxiety and depression, and reports these morbidities in each individual as 'Not Present', 'Equivocal' and 'Present'. The questionnaires were distributed to patients during their two or three-week rehabilitation programmes and their charts reviewed. Scores were recorded along with patient demographics (Image 1). These scores were then compared to values previously reported in population studies. [Morris 2011, Odegard,2007].

Results
The mean age of the 34 patients was 57.0 (+ SD. 23). 68% were female. The primary RMD was as follows: Inflammatory Arthritis 21 (61%), Fibromyalgia 8 (24%), Miscellaneous 5 (15%).
The presence of both depression and anxiety was observed to be significantly higher in this cohort of patients with RMD's compared to what would be expected in the general population (Image 2). Significant numbers of patients were categorised as 'Equivocal', suggesting the true prevalence of these morbidities is likely underrepresented.

Conclusions
This study revealed patients attending the RMDU were substantially more likely to suffer from depression and anxiety than is expected in the general population. This data supports the need for the input of dedicated psychologists in the care for patients with RMD's.

Figure

Age range	17-86
Mean	57
Median	58
Sex:	
Female	23 (68%)
Male	11 (32%)
Primary Diagnosis:	
Rheumatoid Arthritis	11(32%)
Fibromyalgia	8(24%)
Undetermined Inflammatory arthritis	5(14%)
Remainder: JIA, SLE, PsA, AS, MCTD, PAN, OA	10(29%)

Figure

N=34	HADS-Depression	HADS-Anxiety
Not Present	13(38%)	12(35%)
Equivocal	10(29%)	7(21%)
Present	11(32%)	15(44%)
Expected Prevalence	20-25%	20-30%
Average score	8.65	10.03
Concomitant equivocal or present morbidities	16(47%)	

(21A136) ABSTRACT 35 **REGULAR POSTER 29**

Assessing Patient Views on the use of Originator versus Biosimilar TNFα inhibitors in the treatment of Rheumatological Diseases

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Introduction
In 2019 the HSE requested that patients receiving Enbrel and Humira be asked to switch to one of the biosimilars.

Aims/Background
Biosimilar TNFα inhibitors have been shown to be cost-effective alternatives to the originators - Humira and Etanercept. Pursuant to the HSE request patients attending the Department of Rheumatology at St Vincent's University Hospital who were receiving Enbrel and Humira were asked to switch to one of the

biosimilars. The aim of the study was to determine how many patients agreed to switch to a biosimilar and explore the reason(s) for their decision.

Method
Patients who were receiving either Humira or Enbrel were asked to participate. After obtaining verbal consent patients were interviewed either face-to- face or via telephone and their responses recorded. Patients' concerns regarding switching to biosimilars as well as levels of trust in the information provided to them and subsequent experience with the biosimilars were explored.

Results
As part of the ongoing study 37 patients have completed the survey thus far. Twenty-three (62%) patients switched to a biosimilar; of these 8 (22%) subsequently switched back to the originator. Fourteen (38%) patients remained on the originator: 6 (16%) declined to switch to a biosimilar and 8 (22%) patients did not recall being asked to switch. Reasons for not switching included concerns for possible decreased efficacy (79%), side effects (64%) and safety (35%) of the biosimilar and change in the injection device (64%). These patients reported lower levels of trust in their rheumatologist (8.2/10 vs 9/10), and other sources of information that they may have used such as websites. The majority (59%) of patients did not know what a biosimilar medication is.

Conclusions
A large portion (41%) patients switched to a biosimilar and were satisfied with its effects. Patients who permanently switched to a biosimilar have higher levels of trust in their rheumatologist than those who either declined to switch or switched back to the originator. Improving communication with patients and their understanding of biosimilars would likely facilitate the switching to biosimilars.

(21A137) ABSTRACT 36 **REGULAR POSTER 30**

Septic Arthritis Versus CPPD – Getting The Diagnosis Right

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Introduction
Patients admitted to hospital for investigation of an acute swollen joint are frequently presumed to have septic arthritis requiring admission for intravenous antibiotic therapy and less commonly, arthroscopic washout. In our institution we observed that many cases did not include aspiration of joint fluid for assessment with polarizing light microscopy (PLM) before intravenous antibiotic therapy was commenced.

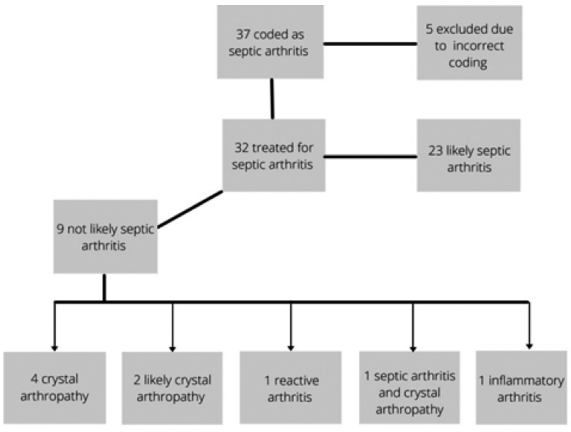
Aims/Background
We therefore decided to audit patients with a label of septic arthritis to determine if their work up included PLM and if indeed septic arthritis was the correct diagnosis at all.

Method
We retrospectively identified all patients with a Hospital In-Patient Enquiry (HIPE) label of septic arthritis who were discharged from the Mater Misericordiae University Hospital, Dublin, Ireland between 01/01/2019 to 30/11/2020. The medical records, laboratory results and radiology results of these patients were reviewed in order to determine if patients with culture negative septic arthritis possibly had had an alternative diagnosis that better explained their symptoms. Permission was obtained from our institutions Clinical Audit & Effectiveness Committee.

Results
37 patients were identified with a label of septic arthritis and 3 were excluded for incorrect diagnosis coding. Of the 32 patients remaining, only 6 patients had assessment with PLM. We identified 9 patients in total where an alternative diagnosis was more likely. 7 of these were treated for septic arthritis with intravenous antibiotics without a positive joint or blood culture and without evidence of septic arthritis on imaging. 4 of these patients had features consistent with a diagnosis of calcium pyrophosphate (CPP) arthritis, with a further 2 highly suspicious for a diagnosis of crystal arthritis. These 9 patients accounted for a total of 139 inpatient bed days, an average of 15 days admission each. The average length of hospital admission for all patients in this study was 25.9 days.

Conclusions
More input from rheumatology and better access to PLM would be of benefit to this cohort. The development of new classification criteria for CPP deposition (CPPD) disease is currently underway. It is anticipated that these will improve detection of this condition, potentially reducing length of stay and unnecessary antibiotic therapy.

Figure



(21A138) ABSTRACT 37 **REGULAR POSTER 31**

Reading Rheum: Is Online Parent Information on Paediatric Rheumatic Diseases Fit for Purpose?

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Introduction

Paediatric rheumatic diseases negatively affect the quality of life of patients, and treatment is primarily focused on controlling the symptoms and improving function for these patients. Juvenile idiopathic arthritis (JIA), juvenile dermatomyositis (JDM), juvenile systemic lupus erythematosus (jSLE) and juvenile scleroderma (jScl) account for a significant proportion of these patients. Parents must be well educated in their child's condition in order to make the best decisions for their care. Online resources are at the forefront of patient and parent education given the ease of accessibility and large volume of information available. Therefore, parents and children require easily comprehensible, plain-English information to thoroughly understand the nature of JIA.

Aims/Background
This study aims to assess the readability of freely available online information for parents of children with JIA from reputable English-language websites using standardized tools for measuring reading ease.

Method
For this study, a focused search was performed in Google Search, using the words "parent information" and "juvenile idiopathic arthritis". Pages by advocacy groups, healthcare providers and universities were reviewed, while excluding results from personal blogs or websites. Reading ease, grade, and percentage of passive sentences were measured using the Flesch-Kincaid Score. For such information leaflets, the recommended reading ease is >70, 5th-8th grade with no passive sentences. Data on each relevant PDF handout, brochure, and pamphlet was inputted into Microsoft Word to be scored. Results were then recorded in Microsoft Excel to determine average readability for each paediatric rheumatic disease.

Results
A total of 40 JIA, 6 JDM, 27 JScl, and 6 JSLE PDF handouts, brochures, and pamphlets were found appropriate for analysis. Table 1 provides a summary of readability scores.

Conclusions
Plain English parent information for paediatric rheumatic diseases is easily accessible online. However, information does not meet the recommended standards for reading ease even for the most common paediatric rheumatic disease, JIA. This demonstrates that there is a need to develop additional easily comprehensible information aimed at parents of children with JIA. It also provides an opportunity to develop such resources in collaboration with families in order to better support parents in understanding their children's disease.

Figure

Table 1

Disease	Mean Ease (Range)	Mean Grade (Range)	Mean % Passive Sentences (Range)
JIA	49.9 (38.5 - 71.9)	10.65 (6.7 - 12.4)	14.61 (4.9 - 31)
JDM	51.5 (38.5 - 71.9)	9.9 (6.7 - 12.4)	22.2 (4.9 - 31)
JScl	47.1 (25.6 - 74.5)	10.8 (6.7 - 14.3)	17.1 (2.7 - 40.2)
JSLE	54.6 (42.7 - 64)	9.6 (7.9 - 11.2)	13.2 (4.3 - 16.3)

(21A139) ABSTRACT 38 **REGULAR POSTER 32**

Delay to diagnosis in axial spondyloarthritis: the gap is closing, but persistent association with severe disease

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Introduction
Despite increased awareness, diagnostic delay in axial spondyloarthritis (axSpA) presents a challenge in the management of the condition. Reducing the gap between symptom onset and time of diagnosis is needed to minimise morbidity and mortality.

Aims/Background
Our aim was to assess if delay to diagnosis has reduced in individuals with a more recent onset of disease.

Method
The Ankylosing Spondylitis Registry of Ireland (ASRI) provided the cohort for this study based on descriptive epidemiological data on the Irish axSpA population. Delay to diagnosis was calculated as age at diagnosis minus age at symptom onset. Validated outcome measures were collected: Bath Ankylosing Spondylitis Disease Activity Index (BASDAI), Bath AS Functional Index (BASFI), Health Assessment Questionnaire (HAQ), AS Quality of Life (ASQoL), and Bath AS Metrology Index (BASMI).

Results
886 patients were included, 644 were male (73%), mean age 46 years (SD 13) and 76% (n=667) fulfilled modified New York (mNY) criteria(Table 1).
Mean (SD) disease duration was 19 (12) years, with 27% having a duration of < 10 years, 32% between 10-20 years and 42% over 20 years. Median delay to diagnosis was 5 years (2, 11), with 51% (n=444) diagnosed within 5 years, 22% (n=192) diagnosed between 5-10 years and 27% (n=232) diagnosed > 10 years from symptom onset. The median delay to diagnosis has reduced significantly (<0.01) in recent years (see Figure 1).
Factors associated with a shorter delay to diagnosis include smoking (6.7 vs 8.9 years, p<0.01), peripheral arthritis (7.0 vs 8.4 years, p=0.02) and absence of sacroiliitis radiographically (6.5 vs 8.4 years, p=0.03). HLA-B27 status and gender had no impact on delay to diagnosis.
When compared to a delay of 10 years had significantly higher BASMI (4.7 vs 4.0, p=0.01) and BASFI (4.8 vs 3.8, p=0.02) scores, with no difference in BASDAI (4.1 vs 3.9, p=0.6)

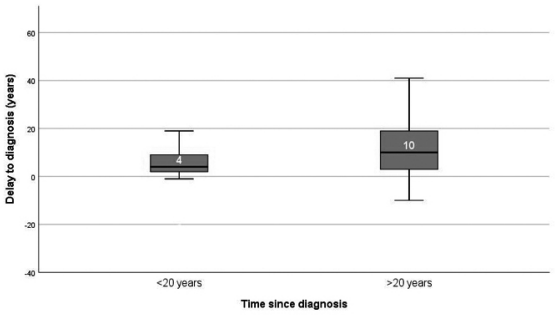
Conclusions
Delay to diagnosis has reduced in individuals with a more recent diagnosis of axSpA. Longer delays to diagnosis are associated with more severe disease in this cohort, indicating a significant unmet need in the management of axSpA

Figure

Table 1: Baseline demographic and clinical characteristics:

Age, mean (SD)	45.9 (12.6)
Female, n (%)	232 (26.2)
Smoker, n (%)	503 (56.8)
HLA-B27 positive, n (%)	602 (67.9)
Disease duration, median (25th,75th)	17.1 (9.5, 27.8)
Delay to diagnosis, median (25th,75th) • 0-5 years, n (%) • 5-10 years, n (%) • >10 years, n (%)	5 (2.0, 11.0) • 444 (50.1) • 192 (21.7) • 232 (26.2)
AAU, n (%)	297 (33.5)
PsO, n (%)	144 (16.3)
IBD, n (%)	91 (10.3)
BASMI, mean (SD)	4.0 (2.1)
BASFI, mean (SD)	3.7 (2.9)
BASDAI, mean (SD)	4.0 (2.4)
HAQ, median (25th, 75th)	0.38 (0.0, 0.75)
ASQoL, mean (SD)	6.5 (5.5)

Figure



(21A140) ABSTRACT 39 **REGULAR POSTER 33**

Review of the Rheumatology Patients in Cork University Hospital who were started on JAKi in 2019, including their compliance with the recommended blood monitoring and drug discontinuation rates

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Introduction
JAK Inhibitors are targeted oral synthetic agents approved for the treatment of rheumatoid arthritis and psoriatic arthritis. While there are no standardized schedules for laboratory monitoring, local guidelines request this cohort to be monitored monthly for 3 months and then 3 monthly including lipid profile

Aims/Background
1-To assess the compliance of laboratory monitoring of JAK Inhibitors as recommended by local guidelines 2- To assess drug retention rates at 6 month

Method
A retrospective observational study of rheumatology patients started on JAKi at Cork University Hospital in 2019 was performed. We reviewed the compliance of patients with recommended laboratory monitoring in the first six months of starting JAK Inhibitors. We further looked into the rate of discontinuation of the JAK Inhibitors in the first six months of therapy.

Results
From Jan 2019 to Dec 2019, total of 32 patients were started on JAKi and were recorded in our database. The indications for treatment were Rheumatoid Arthritis 23 (71%) and Psoriatic Arthritis 8 (25%). The majority (90%) of patients had previously received at least 1 other biologic before starting on JAK Inhibitor therapy. 20 (62.5%) stayed on treatment for the duration of the audit . Of 12 (37.5%) patients who stopped the JAKi, half (6) stopped within the first month. The reason for discontinuation were lack of efficacy (58%) and side effects (50%, 2 infections, 1 chest tightness, 1 palpitations, 1 GI side effects loose bowel motions. From blood monitoring perspective, 73% (19/26, 19 patient got the blood done and 26 patient on the drug that time) got their bloods checked at 1st month interval. 44% (11/25) had bloods checked at 2 months, 40% (10/25) got the bloods checked at 3 months and 75% (15/20) had their bloods checked at 6 months interval. Among the abnormal labs detected, 4 patients had Lymphopenia which resolved in subsequent testing. 2 patients had mild derangement in liver functions

Conclusions
JAK Inh were well tolerated in our cohort. Discontinuation was mainly due to lack of efficacy and usually happened early in the course of treatment. Compliance with blood monitoring was low but highest in the 1st and the 6th months

(21A143) ABSTRACT 40 **REGULAR POSTER 34**

Retinal toxicity screening in connective tissue disease patients on Hydroxychloroquine in Midland Regional Hospital Tullamore. A single centre Audit on guidelines compliance

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Introduction
Hydroxychloroquine (HCQ)is the commonly used disease modifying antirheumatic drug (DMARD) used in patient with rheumatic diseases.[1]. Long term use of HCQ cause keratopathy and rarely irreversible retinopathy.[2]The risk factors for ocular toxicity depend on daily dosing >400mg , >6.5mg/kg ideal/lean body weight, duration, high body mass index (BMI),age >60 years and pre-existing retinal and macular disease.[3]American association of ophthalmology(AAO) revised the guidelines for retinal screening in patient on HCQ in 2016.[4] As per recommendation, "a base line fundus examination should be performed to rule out pre-existing maculopathy. Begin annual screening after 5 years for patient on acceptable doses and without major risk factors."

Aims/Background
To investigate compliance with AAO guidelines on retinal screening in patients with connective disease attending Midland Regional Hospital at Tullamore. In addition to compare the results to an audit performed in 2017.

Method
A retrospective analysis was undertaken of electronic patient record(mainly last clinical letter)of 173 patients with connective tissue disease diagnosis at single regional center, assessing the level of HCQ usage, dose, duration. Also, to investigate adherence with AAO guidelines and level of documented toxicity.

Results
There are total of 173 patients with diagnosis of CTD. In this cohort, 84.4% were females and 15.6% were male. The mean age for this group was 60.7 years(22 -94 years). The average years since the CTD diagnosis was 9.7(Range 0-24 years). In this cohort of 173 patients, 89 patients are or were on HCQ, 63 patients (36.4%) are currently on HCQ, 20 patients (11.6%) stopped the HCQ, and 6 patients(3.5%) died but were on HCQ. 84 patients were not on HCQ. Patients were on HCQ on average 7 years ranging from 0 to 22 years.86.5% of the population was on 400mg HCQ and 5.6% was on 200mg. There was no dose mentioned in 7.9% of the population. Out of 63 patients currently on HCQ, 28 (44.4%) patients had retinal screening documented in clinical letters.

Conclusions
The practice of documentations of retinal screening has improved, with 44% on PLQ having documented evidence of HCQ screening noted in their outpatient consultation notes. This has improved from 13.5% in our 2017 audit.

(21A145) ABSTRACT 41 **REGULAR POSTER 35**

Review of corticosteroid induction protocols used for children with a new diagnosis of polyarticular course juvenile idiopathic arthritis (pJIA) in an East of England Tertiary Rheumatology Service

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Introduction
Current clinical-practice for treatment of pJIA involves high-dose corticosteroids for a limited period. The aim is to induce remission whilst systemic treatment, commenced alongside corticosteroids begins to work. No standardised, evidence-based approach currently exists to guide corticosteroid-induction-regimens in pJIA.

Aims/Background

1. Describe corticosteroid-regimens in children newly-diagnosed with pJIA.
2. Compare disease-activity at diagnosis, with follow-up review after treatment with corticosteroids.

Method
Retrospective chart-review of children newly-diagnosed with pJIA, January-2019 to December-2020, inclusive. Demographic-data and steroid-regimens documented. Disease-activity recorded pre-instigation of corticosteroids, and at follow-up using a modified(m) JADAS-27 score (active joint count (AJC), CRP and ESR). Total score achievable using mJADAS-27=47.

Results
Sixteen-children were diagnosed with pJIA, (male=5,15%). Eleven-children (69%) had polyarticular-RF-negative-JIA (RF-), 3(19%) polyarticular-RF-positive-JIA (RF+), 1(6%) Psoriatic-JIA (PsA) and 1(6%) HLA-B27-positive-enthesitis-related arthritis (ERA). All children were commenced on NSAIDs and subcutaneous Methotrexate (15mg/m2) alongside corticosteroids.
A three-day course of intravenous-methylprednisolone (ivMP) was the initial corticosteroid of choice in 12/16(75%) children. Six-children were given a dose of 30mg/kg (maximum 1gram), two-children 20mg/kg and four 500mg (weight 30.9-44.2 kg; two children were on oral prednisolone (POPred) prior to admission for ivMP; one child had T1DM). Following 3-days of ivMP, all 12-children were commenced on POPred.
The children that did not receive ivMP were commenced on POPred at a dose of 0.5-1mg/kg, with an initial weaning-plan of 5mg/week. Two of these children had RF+, one had ERA and the other PsA. AJC ranged from 5-12.
Starting dose of POPred following 3-days of ivMP ranged from 7.5-40mg, maximum-dose 1mg/kg. Weaning instructions varied from 5mg/week (n=6), 2.5mg/week (n=4) or stay on low-dose (<0.25mg/kg) until review (n=6).
Median mJADAS-27 pre-corticosteroids was 19.4 (5-43.5). Follow-up mJADAS-27 was calculated about 5.5 weeks (3-12) into corticosteroid-treatment. Median follow-up mJADAS-27 was 3.5 (0-8). On average, mJADAS-27 improved by 81% (0-100%) following corticosteroids.

Conclusions
Corticosteroids lead to improved disease-activity in children with pJIA. However, treatment regimens employed vary. Longitudinal-studies would enable evidence-based development of protocols for corticosteroid induction in pJIA. They should consider optimal corticosteroid route-of-administration and dose to achieve maximal-benefit, whilst minimising corticosteroid-toxicity.

(21A147) ABSTRACT 42 **REGULAR POSTER 36**

Prevalence of adverse maternal and feotal outcomes during pregnancy in patients with Takayasu's arteritis : a systematic review and meta-analysis

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Introduction
Takayasu's arteritis is a systemic autoimmune disease characterised by large vessel vasculitis. It usually affects women of childbearing age, with 90% of patients diagnosed < 30 years of age, and previous studies suggest it is associated with adverse pregnancy outcomes. There is a vast discrepancy within the literature; some studies suggest preeclampsia occurring in 4.5% of patients, while others suggest a rate of 61%.

Aims/Background
The purpose of our work was to determine the prevalence of both maternal and fetal outcomes in patients with Takayasu's arteritis through a systematic review and meta-analysis.

Method
We performed a systematic review of the literature using Medline, Web of Science, and the Cochrane library from their inception until March 26, 2021, to identify studies that reported pregnancy outcomes in patients with Takayasu's arteritis. Demographic information, maternal outcomes, foetal outcomes, prednisolone use, and information on disease activity were extracted from studies. Two authors independently selected the studies, extracted the data and assessed for risk of bias.

Results
Our systematic review identified 6638 abstracts, of which 23 articles were included. The miscarriage rate was 11 [7-16] % and an intrauterine death rate of 1[0-3] %. Preeclampsia was reported in 10[7-12] % of patients (Figure 1). Preterm delivery occurred in 15[12-19] %. New hypertension in pregnancy was reported in 12[8-16] %. Intrauterine growth restriction occurred in 16[10-21] % of pregnancies. The prevalence of caesarean sections among Takayasu patients was 28 [22-28] % (Figure 2). In terms of fetal outcomes, low birth weight was associated with 16[10-21] % of live births. Flares of vasculitis occurred in 11[8-15] % of patients.

Conclusions
There is a high prevalence of both maternal and fetal adverse outcomes in pregnant patients with Takayasu's arteritis, who require careful management by a multidisciplinary team during pregnancy.

Figure

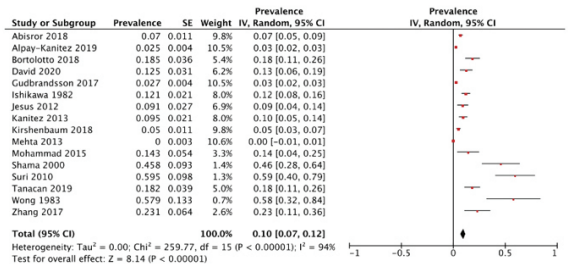

Figure 1: Prevalence of preeclampsia in Takayasu patients

Figure

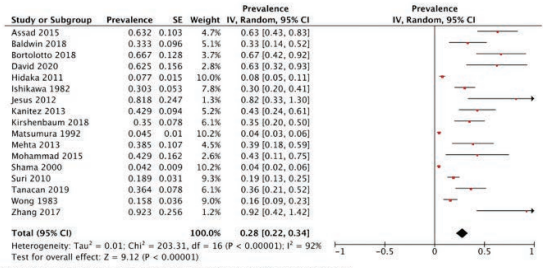

Figure 2: Prevalence of caesarean section in Takayasu patients

(21A149) ABSTRACT 43 **REGULAR POSTER 37**

Re-audit on Ophthalmology referral for patients on Hydroxychloroquine (HCQ) in the North-west Rheumatology Unit

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Introduction
Hydroxychloroquine (HCQ) is commonly and successfully used to treat autoimmune conditions and inflammatory arthritis in rheumatology. Nevertheless, one adverse effect associated with HCQ is retinopathy, which can cause visual loss.
There is an early pre-symptomatic phase which can only be detected by advanced ophthalmological testing including optical coherence tomography (OCT). This early phase can be reversed or stabilised by discontinuing HCQ . This outlines the requirement for an official retinal screening programme in the rheumatology department in conjunction with the local ophthalmology service.

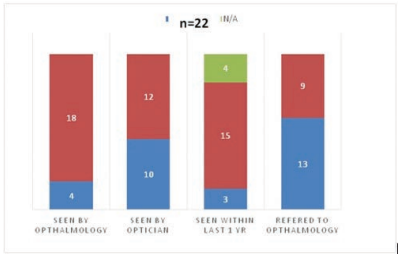
Aims/Background
The aim of this re- audit is to see further improvement in the number of ophthalmology referrals for patients on HCQ in the North-west rheumatology unit after implementing guidelines released by the Royal College of Ophthalmology in February 2018 . Our previous audit showed double the standard referrals post implementation of these guidelines, however there was still room for improvement and only a small number of people had been seen by ophthalmology and even fewer within one year.

Method
A prospective clinical re-audit was performed over three weeks on 22 patients taking HCQ who attended the rheumatology department. Data collected included whether they were referred to ophthalmology, whether they had been seen by ophthalmology and if so whether this was within the last year. We based evidence of ophthalmology referral around documentation of same in the clinic letters and whether the patient recalled being seen by an ophthalmologist.

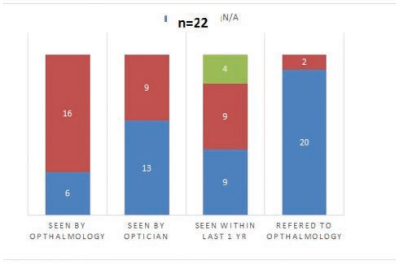
Results
91% (20) of patients had been referred to ophthalmology. 59 % (13) had been seen by either an ophthalmologist or optician. Only 27% (6) had been seen by an optician and only 22 % (5) had been seen in the last year.

Conclusions
The number of ophthalmology referrals has increased from 59% to 91% in the re-audit one year post introduction of the standard referral template. The numbers being seen by ophthalmology are still low. However, they have improved from last year's audit. (From 4 to 6 altogether and from 3 to 5 in the last year). More needs to be done to ensure patients on HCQ are being seen by ophthalmology.

Figure



Figure



(21A150) ABSTRACT 44 **REGULAR POSTER 38**

An analysis of Rituximab dose reduction and CD 19 monitoring for Rheumatoid Arthritis patients in clinical remission.

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Introduction
Appropriate dose reduction of synthetic and biological DMARDs to the minimally effective dose for Rheumatoid Arthritis (RA) patients in clinical remission, reduces healthcare costs and the risk of adverse drug side effects. To date, rituximab dose reduction in RA remains ad-hoc with no standardised protocol.

Aims/Background
Rituximab is a monoclonal antibody targeting CD20 B cells. Recovery of the circulating B cell marker CD19 following rituximab predicts a subsequent flare of RA at 4 months (1). We previously proposed a 2-step protocol of (1) initial empirical dose reduction from 2g to 1g per 6 months for RA remission patients, followed by (2) subsequent re-introduction interval of 1g rituximab based on CD 19 recovery time or time to flare. The current study evaluated the consistency & safety of this rituximab dose reduction and CD19 monitoring in our current clinical practice.

Method
A list of RA patients receiving Rituximab was compiled from EPR and Pharmacy Records. Relationships between rituximab prescription patterns, disease activity and CD-19 counts were assessed.

Results
32 RA patients currently receive Rituximab, with a mean + S.D.

treatment duration of 63 + 46 months. 25(78.1%) patients were in sustained remission/low disease activity (REM/LDAS28) prior to their last Rituximab dosing. 13(52%) REM/L-DAS28 patients remain on 2g 6-monthly with 12(48%) receiving a reduced dose of 1g 6-monthly. Of the 13 REM/L-DAS28 patients receiving 2g rituximab, 9 had no prior dose reduction attempted, while 4 patients had a relapse of symptoms following a reduced dose of 1g 6-monthly. Of REM/L-DAS28 patients in remission, 9 (36%) did not have CD19 levels tested, 12 (48%) had 1 CD19 level tested and 4 patients (16%) had 2 or more CD19 levels tested. Only 4 patients had their infusions pushed out beyond 6 months as guided by low CD19 counts.

Conclusions
This analysis shows a lack of consistency with rituximab dose reduction and CD19 monitoring in RA, with a potential risk of disease flares. Implementation of a modified protocol, incorporating the systematic measurement of CD19 to guide each stage of dose reduction, may improve resource allocation, efficacy & safer prescribing of rituximab in RA.

(21A151) ABSTRACT 45 **REGULAR POSTER 39**

ANA Testing – Costly misuse of a clinical tool

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Introduction
ANA is an autoantibody associated with several autoimmune conditions. 3-15% of healthy individuals are ANA positive; the incidence increases with age. Ordering ANA tests for the correct indication is essential. Lack of knowledge and poor interpretation of testing can result in over requesting of ANAs. Misuse increases the demand placed on laboratory staff and resources.

Aims/Background
The American College of Rheumatology has clear indications outlined for ANA testing. The aim of our quality improvement project was to assess compliance with those set in the international guidelines. This audit allowed us to assess and potentially change clinical practice. We identified areas of opportunity which would benefit both patient care and resource allocation.

Method
We performed an audit of all inpatient and outpatient ANA tests requested from our laboratory over a 1 month period. We assessed if the ANA test was indicated, the result of the test and if a repeat test was ordered within the time frame. We also performed a cost analysis of the additional expense placed on the laboratory from repeated tests.

Results
Our study population (23) was 78% female with a mean age of 48(19-88). 35% of the cohort tested yielded positive ANA results with 87.5% of the positive results meeting ACR indications for ANA testing.
65% of our patient group yielded negative results with 66% of this group meeting ACR standards for testing. This meant that overall, 27% of our sample didn't meet the requirements.
61% had inappropriate repeat ANA testing within the 4 week period examined. The estimated additional cost to our laboratory department was €5160, extrapolated to a 12 month period, this represents over €60,000 for inappropriate repeated ANA testing.

Conclusions
Our findings led to virtual education sessions with staff in the hospital. We changed the system for ordering ANA's, giving the laboratory staff the authority to reject repeated ANA testing. We plan to deliver teaching to our colleagues in the community as 22% of tests were requested from general practitioners. We aim to assess the cost savings and impact on clinical practice with a re-audit next year.

(21A152) ABSTRACT 46 **REGULAR POSTER 40**

Audit of referrals to Rheumatology rapid access clinic at Belfast Health and Social Care Trust during the COVID-19 pandemic

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Introduction
Rapid access clinic (RAC) is a service provided by the Rheumatology department in the Belfast Trust for the early assessment of patients with an acute rheumatology issue. This service was initially delivered on a weekly basis and was increased to daily at the beginning of the COVID-19 pandemic to ensure urgent face-to-face clinical assessment could continue.

Aims/Background
To evaluate the common presentations, patient demographics and referral sources to RAC to determine how this new service is being utilised.

Method
Referrals to RAC were audited prospectively over a 5-week period. Patient demographics, diagnosis and interventions were recorded.

Results
92 patients were referred but 88 attended; 37 patients were male (42%) and 51 females (58%). Average patient age was 58 with the youngest aged 24 and oldest aged 94. 52.3% of patients were known to Rheumatology services and 47.7% were new referrals. Referrals came from the emergency department (23.9%), recent attendance at Rheumatology outpatient clinics (19.3%), allied health professionals such as nurse specialists (17%) and general practitioners (17%). Average waiting time to be seen at RAC was 8.35 days.
Majority of the patients were referred due to a suspected flare of inflammatory arthritis (25%), crystal arthropathy (21.6%), and giant cell arteritis (21.6%). Interventions conducted at RAC include blood tests (77.3%), bedside ultrasound scan (48.9%), X-rays (28.4%) and joint aspiration/injection (30.7%). Most patients were followed up at outpatient clinic (85.2%), 3.4% of patients required admission from the RAC, and 11.4% of patients were discharged. 75% of referrals were deemed appropriate for RAC, whereas 25% were not.

Conclusions
RAC is an invaluable service that allows us to provide prompt assessment of patients with urgent presentations. 88 patients were assessed at RAC in a 5-week period. Most referrals were inflammatory arthritis, crystal arthropathy and giant cell arteritis. Due to the marked reduction in outpatient face-to-face clinics since the beginning of the COVID-19 pandemic, these patients would have had to wait significantly longer for specialist Rheumatology assessment without RAC. Increased waiting times may in turn lead to permanent joint or organ damage. Further work is needed in evaluating appropriateness of RAC referrals in order to improve waiting times.

(21A153) ABSTRACT 47 REGULAR POSTER 41

Identification of PAM as a regulator of tissue damage mediated by F1-type Rheumatoid Arthritis Synovial Fibroblasts

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Introduction
The single nucleotide variant (SNV) rs26232 is located within the first intron of the Macrophage Immunometabolism regulator (MACIR) (formerly C5orf30), the C allele is associated with the susceptibility to rheumatoid arthritis (RA), and with more severe radiological joint damage. However, rs26232 genotype is not association with either total MACIR mRNA or with levels of individual transcript variants suggesting that the genetic association primarily related to another nearby gene.

Aims/Background
Our aims are to investigate the roles of PAM in RASF-mediated joint damage.

Method
Quantitative PCR was used to measure gene expression in RASFs. Gene knock-down was achieved using siRNA technology. Matrigel-coated Boyden transwell chambers were used to measure RASF invasion and migration was assayed using the scratch assay. Proliferation was quantified using BrdU ELISA and Caspase 3/7 levels were used to measure apoptotic activities.

Results
Online databases (GTEx portal and Open Targets Genetics) of expression quantitative trait loci (eQTL) identified PAM expression to be associated with rs26232 genotype in multiple tissue types, with the risk C allele associated with lower levels of PAM expression. Analysis of the Pathobiology of Early Arthritis database (https://peac.hpc.qmul.ac.uk/) revealed highest levels of PAM expression in the fibrous RA synovium compared with lymphoid- or myeloid-rich pathotypes. Single cell RNAseq of RA synovial tissue revealed PAM expression to be restricted to RASFs, being greatest in the tissue damaging F1 subtype. siRNA-mediated PAM knockdown resulted in increased RASF proliferation ($p = 0.042$) and invasion ($p = 0.022$), and decreased apoptosis ($p = 0.01$), compared to control siRNA treated RASFs.

Conclusions
This data demonstrates that PAM modulates tissue destruction mediated by F1 RASFs. The primary role of PAM is peptide amidation, a post-translation modification that is known to increase the half-life and reactivity of the protein. Additionally, a fragment of the PAM protein enters the nucleus and influences gene expression of a subset of genes by unknown mechanisms. Our ongoing work will concentrate on elucidating the molecular mechanisms by which influences RASF-mediated tissue damage.

(21A154) ABSTRACT 48 REGULAR POSTER 42

Response to Sequential Lines of Biological Therapy in Psoriatic Arthritis: A single centre cohort study

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Introduction
One-third of patients with IAs will fail or discontinue their first biologic with a significant proportion switching on to a 3rd biologic or higher. Due to a lack of evidence on the response to sequential therapies, individual patients may not have further lines routinely funded after three bDMARDs in the UK. While limiting lines of therapy remains a UK concern, many countries with rationed healthcare systems follow the UK model of drug usage.

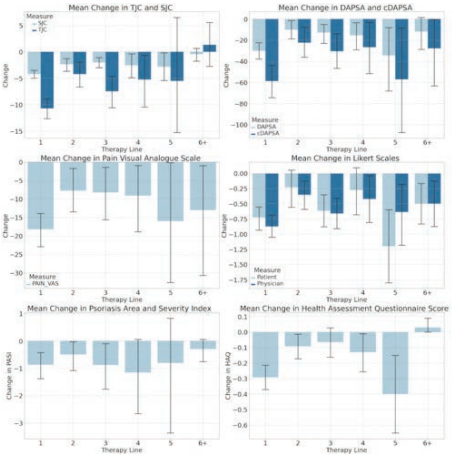
Aims/Background
To describe the response to sequential lines of bDMARD therapy prescribed in routine care in a UK single-centre cohort.

Method
A retrospective sample of patients with PsA who received at least one bDMARD was included. Physician and patient-reported outcome measures were collected at baseline and after a median follow-up of 3 months. The mean change with a 95% confidence interval (CI) was used to report the difference between the baseline and follow-up measures.

Results
The patients mean age was 57.7 with a median disease duration of 14.4 years (9.7 – 23.2). Data was available for 194 patients commencing 1st line bDMARD, 106 (2nd line), 93 (3rd line), 33 (4th line), 12 (5th line), and 9 (6th line and higher) from a total of 759 patients in the cohort. Reasons for changing biological therapies include lack or loss of efficacy, intolerance, side effects, and comorbidities. Mean levels of joint disease at drug initiation did not diminish with subsequent lines of therapy. Clinical and patient-reported outcomes by line of therapy are reported in figure 1. Clinical responses were greatest to first-line bDMARD, however, clinically relevant DAPSA improvements were seen up to 5th line. Absolute levels of psoriasis in the cohort were low, however, improvement in PASI was achieved across all lines of therapy. Patient and Physician Global Assessments and the Pain Visual analogue score showed a similar trend with the greatest improvement to first-line treatment across all lines of therapy.

Conclusions
Clinical response was greatest to the first line bDMARD but an overall improvement in DAPSA, PASI or pain response did not appear to diminish up to the 5th line

Figure



(21A155) ABSTRACT 49 **REGULAR POSTER 43**

Herpes Zoster in the Filgotinib Rheumatoid Arthritis Program

Author(s)
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Introduction
The once daily, oral Janus kinase (JAK)-1 preferential inhibitor filgotinib (FIL) improved signs and symptoms of rheumatoid arthritis (RA) in phase (P)3 trials.1-3 Patients (pts) with RA have increased herpes zoster (HZ) reactivation risk vs the general population. JAK inhibition is associated with increased infection incidence, including HZ.4

Aims/Background
To assess long-term safety of FIL across the global clinical program with respect to HZ.

Method
Patients meeting 2010 ACR/EULAR RA criteria in a pooled analysis of P2 DARWIN 1–2 (NCT01888874/ NCT01894516), P3 FINCH 1–3 (NCT02889796/NCT02873936/NCT02886728), and long-term extension studies (D3, F4) (NCT02065700/NCT03025308) were included. Placebo (PBO)-controlled as-randomised analysis included pts receiving FIL 100 mg (FIL100), FIL 200 mg (FIL200), or PBO up to week (W)12 (D1–2, F1–2); active-controlled as-randomised analysis included pts receiving FIL100, FIL200, adalimumab (ADA), or methotrexate (MTX) up to W52

Results
Table shows TE HZ EAIRs in a pooled analysis. Rates of HZ were lower for FIL200 vs PBO during the 12W PBO-controlled period. At 52W, HZ rates were higher for FIL200/100 vs active control. Long-term HZ rates increased for FIL200 vs FIL100.
Most TE HZ infections were mild to moderate and non-serious; 6 were serious; 2 were recurrences. No visceral TE HZ occurred across the FIL RA program; there was 1 case each of genital, disseminated, and ophthalmic HZ. The disseminated HZ occurred in a pt with prior HZ history. Lymphopenia was not associated with HZ during the PBO-controlled W12 period.

Conclusions
HZ was more common in both FIL groups vs ADA or MTX up to 52 weeks but comparable vs PBO during the 12-week placebo-controlled period. In multivariate analyses, prior history of HZ, Asian region, and age ≥50 years were associated with increased HZ risk.

References
1. Genovese et al. JAMA. 2019;322:315–25.
2. Westhovens et al. Ann Rheum Dis. 2021;80:727–38.
3. Combe et al. Ann Rheum Dis. 2021;80:848–58.
4. Higarashi and Honda. Drugs. 2020;80:1183–201.

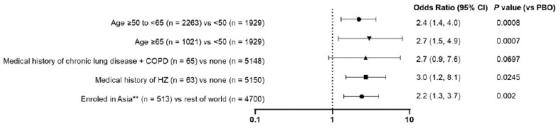
Table: EAIR of treatment-emergent herpes zoster

	N	Patient-years exposure	EAIR (95% CI)	EAIR diff (95% CI vs PBO/active control)
12W PBO-controlled				
FIL200	777	179.8	0.6 (0.1, 3.9)	−0.56 (−2.5, 1.3)
FIL100	788	181.6	1.1 (0.3, 4.4)	−0.02 (−2.2, 2.2)
PBO	781	178.4	1.1 (0.3, 4.5)	
Active-controlled, as-randomised[a]				
FIL200	478	439.7	1.4 (0.6, 3.0)	0.69 (−0.7, 2.1)
FIL100	480	443.4	0.9 (0.3, 2.4)	0.23 (−1.1, 1.5)
ADA	325	297.6	0.7 (0.2, 2.7)	
Active-controlled, as-randomised[a]				
FIL200	626	578.0	1.7 (0.9, 3.2)	0.65 (−0.8, 2.2)
FIL100	207	195.0	1.5 (0.5, 4.8)	0.46 (−1.6, 2.5)
MTX	416	372.2	1.1 (0.4, 2.9)	
Long-term as-treated[b]				
FIL200	2267	4047.7	1.8 (1.4, 2.3)	NC
FIL100	1647	2032.9	1.1 (0.8, 1.7)	NC

[a]up to W52. [b]data cut for LTE FINCH 4, Sept 19, 2019; DARWIN 3, April 26 2019.

ADA, adalimumab; CI, confidence interval; EAIR, exposure-adjusted incidence rate; FIL, filgotinib; MTX, methotrexate; NC, not calculated; PBO, placebo; W week.

Figure: TE HZ risk factors analysis of multivariate logistic regression model* using long-term as-treated analysis set



*Model included treatment groups and risk factors that were significant in univariate analysis; patients could contribute to more than 1 group. Corticosteroid use was a risk factor (data not shown).

**Korea, Taiwan, Hong Kong, and Japan

CI, confidence interval; COPD, chronic obstructive pulmonary disease; HZ, herpes zoster; PBO, placebo; TE, treatment-emergent.

(21A156) ABSTRACT 50 **REGULAR POSTER 44**

Infections and Serious Infections in the Filgotinib Rheumatoid Arthritis Program

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Introduction
The Janus kinase (JAK)-1 preferential inhibitor filgotinib (FIL) improved rheumatoid arthritis (RA) signs and symptoms in 3 phase (P)3 trials.1–3

Aims/Background
To assess long-term safety across the FIL program regarding infections, including serious infections (SI).

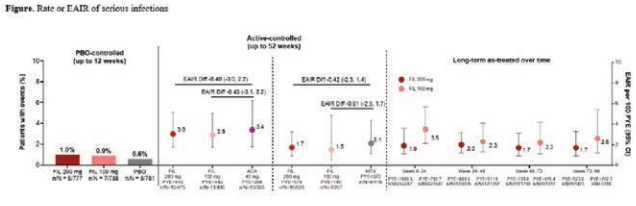
Method
Patients (pts) meeting 2010 ACR/EULAR RA criteria in pooled analysis of P2 DARWIN 1–2 (NCT01888874/NCT01894516) (P3 FINCH 1–3) (NCT02889796/NCT02873936/NCT02886728), and LTE (DARWIN 3, FINCH 4) (NCT02065700/NCT03025308) were included. The placebo (PBO)-controlled as-randomised data set included pts receiving FIL 100 mg (FIL100), FIL 200 mg (FIL200), or PBO up to week (W)12 (D1–2, F1–2). The active-controlled as-randomised data set included pts receiving FIL100, FIL200, adalimumab (ADA), or methotrexate (MTX) up to W52 (F1, F3). The long-term as-treated data set included pts in all 7 studies receiving FIL100 or FIL200; data after rerandomisation were included and contributed to treatment received.
Exposure-adjusted incidence rates (EAIRs) per 100 patient-years exposure (PYE) and differences with 95% confidence intervals (CIs) were calculated using Poisson regression; EAIRs for tuberculosis (TB) in active controlled sets were calculated using an Exact Poisson method. Kaplan-Meier (KM) event probabilities with 95% CIs were provided for SI. If pts had multiple events within the same treatment period, only the first event was counted in EAIR calculation; PYE were calculated up to the last follow-up time or day before next treatment, including after first event. For KM analysis, time to event was calculated until the first event.

Results
Of 2267/1647 pts in as-treated set receiving FIL200/FIL100, 1697 had treatment-emergent infection; 118 were SI. Baseline potential risk factors for pts with SI are in Table attachment.
SI rate or EAIRs are in Figure attachment.

Conclusions
EAIRs of infections and SI for FIL were similar to PBO, ADA, and MTX. At 52W, incidence rates of SI were comparable for FIL100 and FIL200. Long-term SI EAIR for FIL100 was slightly higher than for FIL200.

References
1. Genovese et al. JAMA. 2019;322:315–25.
2. Westhovens et al. Ann Rheum Dis. 2021;80:727–38.
3. Combe et al. Ann Rheum Dis. 2021;80:848–58.
4. Strand et al. Arthritis Res Ther. 2015;17:362.

Figure. Rate or EAIR of serious infections



ADA, adalimumab; CI, confidence interval; EAIR, exposure-adjusted incidence rate/100 PYE; FIL, filgotinib; MTX, methotrexate; PBO, placebo; PYE, patient-years of exposure.

Table. Baseline characteristics of pts with/without treatment emergent SI*

Parameter, n (%)	SI N = 92	No SI N = 2491
Medical history		
Chronic lung disease	13 (14.1)	125 (5.0)
Chronic renal disease	3 (3.3)	23 (0.9)
Infections and infestations	29 (31.5)	499 (20.0)
Baseline body mass index, kg/m²		
<30	64 (69.6)	1749 (70.2)
≥30	28 (30.4)	742 (29.8)
Age, years		
<65	67 (72.8)	2006 (80.5)
≥65	25 (27.2)	485 (19.5)
Former/current smoker	30 (32.6)	677 (27.2)
Oral corticosteroids, mg		
<7.5	28 (56.0)	731 (66.1)
≥7.5	22 (44.0)	375 (33.9)
Missing data	42	1385

*Phase 3 (FINCH 1-4) studies, as randomised. SI, serious infection.

(21A158) ABSTRACT 51 **REGULAR POSTER 45**

Geographic Variation of Efficacy in the Filgotinib Rheumatoid Arthritis Program

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Introduction
The Janus kinase-1 preferential inhibitor filgotinib (FIL) improved signs and symptoms of rheumatoid arthritis (RA) across the FIL clinical program.1–3
Aims/Background
To assess FIL efficacy across geographic regions.

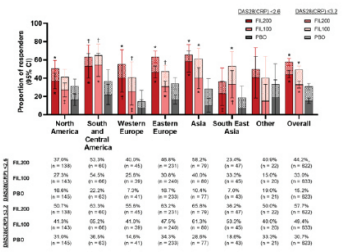
Method
Pooled data from patients (pts) meeting 2010 ACR/EULAR RA criteria randomised to once-daily FIL 200 mg (FIL200), FIL100 mg (FIL100), or placebo (PBO) with background conventional synthetic disease-modifying antirheumatic drugs in DARWIN 1 (NCT01888874) (W12) and FINCH 1–2 (NCT02889796/NCT02873936) (W24) studies were evaluated. Data were analysed by region: North America, South and Central America, Western Europe, Eastern Europe, Asia, South East (SE) Asia, and Other. W12 American College of Rheumatology 20% improvement (ACR20) and W24 DAS28[CRP] <2.6 and ≤3.2 response rates were analysed by a logistic regression model. CFB in HAQ-DI at W12 was analysed by a mixed-effects model for repeated measures. Analyses were exploratory and not adjusted for multiplicity.

Results
Despite high PBO response rates in Eastern Europe and South and Central America, greater proportions of pts receiving FIL200 or FIL100 vs PBO achieved ACR20 at W12 (P <0.05) in all regions, except Other (with lowest sample size, n = 69), where both FIL doses were numerically greater than PBO (Table). At W12, least-squares mean CFB in HAQ-DI improved for pts receiving FIL200 or FIL100 vs PBO (P <0.05) in all regions, except SE Asia, where improvement was numeric (Table). At W24, DAS28(CRP) <2.6 and ≤3.2 response rates were higher for both doses of FIL vs PBO (P <0.05) in all regions, with the exception of Other, where PBO was higher than FIL100 for DAS28(CRP) <2.6 (Figure).

Conclusions
In exploratory analyses, ACR20, DAS28(CRP) <2.6 and ≤3.2 response rates and HAQ-DI scores varied between regions; however, no stable trend was shown in any particular region. Small patient numbers in some subgroups may confound statistical analysis.

1. Genovese et al. JAMA. 2019;322:315–25.
2. Westhovens et al. Ann Rheum Dis. 2021;80:727–38.
3. Combe et al. Ann Rheum Dis. 2021;80:848–58.

Figure: Proportion of patients achieving DAS28(CRP) ≤2.6 and ≤3.2 at week 24



"Other" includes South Africa, New Zealand, Australia, and Israel.

Only patients initially randomized to the treatment groups in each study for the comparison of interest are included.

*P <0.001, †P <0.01, ‡P <0.05; not adjusted for multiplicity. Symbols inside bars correspond to DAS28(CRP) <2.6; symbols above bars correspond to DAS28(CRP) ≤3.2.

CI, confidence interval; DAS28(CRP), Disease Activity Score in 28 Joints (C-reactive protein); FIL, filgotinib; PBO, placebo.

Table: Proportion of pts achieving ACR20 and LSM change from baseline HAQ-DI at week 12

	ACR20			HAQ-DI		
	FIL200	FIL100	PBO	FIL200	FIL100	PBO
North America n = 455	64.8* (56.7, 72.9)	58.3* (50.3, 66.4)	33.8 (26.0, 41.6)	−0.63* (−0.71, −0.56)	−0.58* (−0.65, −0.51)	−0.34 (−0.41, −0.27)
South and Central America n = 285	77.2 (68.1, 86.3)	77.3 (65.8, 88.7)	57.4 (46.9, 68.0)	−0.77* (−0.85, −0.68)	−0.67* (−0.75, −0.59)	−0.43 (−0.52, −0.35)
Western Europe n = 135	69.4* (55.5, 83.3)	68.3* (52.8, 83.8)	24.4 (10.8, 38.1)	−0.69* (−0.80, −0.58)	−0.61* (−0.73, −0.49)	−0.28 (−0.40, −0.17)
Eastern Europe n = 822	77.1* (71.9, 82.3)	69.1* (62.5, 74.7)	54.6 (48.5, 60.7)	−0.62* (−0.68, −0.56)	−0.51* (−0.57, −0.45)	−0.34 (−0.40, −0.28)
Asia n = 236	81.0* (71.7, 90.3)	60.0* (48.6, 71.4)	37.7 (26.2, 49.1)	−0.83* (−0.92, −0.73)	−0.61* (−0.70, −0.52)	−0.42 (−0.52, −0.33)
South East Asia n = 135	70.2* (56.1, 84.4)	71.1* (56.8, 85.5)	39.5 (23.8, 55.3)	−0.61 (−0.73, −0.49)	−0.57 (−0.69, −0.45)	−0.43 (−0.58, −0.28)
Other n = 69	60.0 (38.8, 81.2)	52.4 (28.6, 76.1)	39.1 (17.0, 61.2)	−0.56 (−0.72, −41)	−0.59 (−0.76, −0.43)	−0.53 (−0.69, −0.37)
Overall N = 2135	72.4* (70.1, 75.8)	65.4* (62.2, 70.0)	45.3 (41.5, 49.0)	−0.71* (−0.76, −0.66)	−0.61* (−0.66, −0.56)	−0.49 (−0.53, −0.37)

Includes only patients initially randomized to the treatment groups in each study for the comparison of interest.

ACR20 presented as percentage (95% CI); 95% CI was based on normal approximation method with a continuity correction; P values calculated from the logistic regression. HAQ-DI presented as LSM (99% CI); LSM, 95% CI, and P value calculated from a mixed effects model for repeated measures.

*P <0.001, †P <0.01, ‡P <0.05; not adjusted for multiplicity.

ACR20, American College of Rheumatology 20% improvement; CI, confidence interval; FIL, filgotinib; HAQ-DI, Health Assessment Questionnaire-Disability Index; LSM, least square mean; PBO, placebo.

(21A159) ABSTRACT 52 **REGULAR POSTER 46**

Referral for retinal screening amongst rheumatology patients on hydroxychloroquine

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Introduction
Hydroxychloroquine (HCQ) is the cornerstone of the management of systemic lupus erythematosus (SLE) but therapy can be limited by retinopathy which occurs in around 7.5% and can occur in up to 20-50% depending on exposure dose and time1. It is recommended that all patients who are on long term HCQ should have a baseline ocular examination in their first year with OCT2 and that HCQ dosing should be 5mg/kg/day (max 400 mg per day) to reduce the risk of retinal toxicity1. At present, a paper referral form to ophthalmology department is completed for patients commenced on HCQ in the rheumatology department of Beaumont Hospital.

Aims/Background
To determine the frequency of referrals for hydroxychloroquine retinopathy screening amongst patients attending the Rheumatology Department in Beaumont Hospital.

Method
Healthcare records of patients attending the rheumatology outpatients prescribed HCQ were reviewed for December 2020. Patient's demographics, dose of HCQ, weight, retinal screening referral, tamoxifen use and history of renal impairment were recorded. The audit is based on the guidelines recommended by the Royal College of Ophthalmologists, United Kingdom.

Results
45 charts were reviewed. 32 (71.1%) were female with median age of 58 years. A majority of patients were on 400mg daily (73.3%), followed by 22.2% on 200mg daily and 4.5% on 300mg daily. Only 30 (66.7%) had weight recorded within the past year. 24 (53.3%) were on HCQ for rheumatoid arthritis, 10 (22.2%) for systemic lupus erythematosus, 8 (17.8%) for other connective tissue diseases and 3 (6.7%) for inflammatory osteoarthritis. None of the patients were on tamoxifen and only 4.4% were known to have chronic kidney disease. 64.4% of patients on HCQ were known to the ophthalmology service and 4(25%) who were not has since been referred to them.

Conclusions
Less than three quarters of patients on hydroxychloroquine have been referred to ophthalmology for retinal screening. An electronic referral for retinal screening has been developed to ensure this occurs and patients attending review visits will have their weights checked.

(21A160) ABSTRACT 53 **REGULAR POSTER 47**

An Audit on Documentation of Intra-articular and Soft Tissue Injections in the Rheumatology Department of Beaumont Hospital

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Introduction
Documentation of procedure notes is of great importance as it ensures communication of care amongst healthcare professionals which leads to patient care and safety.

Aims/Background
To determine the quality of documentation of injection procedures in the Rheumatology outpatient based on the Health Service Executive Standards and Recommended Practices for Healthcare Records and Guide to Professional Conduct and Ethics for Registered Medical Professionals (8th Edition).

Method
Healthcare records of patients attending the Rheumatology outpatient between 24 November 2020 and 18 December 2020 were reviewed to identify patients who have had an intraarticular or soft tissue injection at clinic. Documentation of procedure for patients who have undergone intraarticular or soft tissue injections was recorded and analysed. Parameters included patient identification, indication for procedure, documentation of verbal consent being obtained, treatment/procedure performed, complication and practitioner identification were collected.

Results
23 healthcare records were reviewed. The basic documentation such as the date of procedure was at 87% and only 56.5% for patient's

name, date of birth and chart number. Documented verbal consent for the procedure was only at 47.8% and none had documented risks. The types of injection were recorded in all charts. Less than three quarters of the procedure note contained documentation of no touch technique, type of corticosteroid used, dose of corticosteroid, type of local anaesthesia used, strength of local anaesthesia and immediate complications. A majority of medical practitioner included their signatures but less than half included their names and medical council numbers.

Conclusions

The documentation for intraarticular and soft tissue injections was less than satisfactory. The rheumatology outpatient clinics are often very busy and clinicians are less likely to document comprehensive procedure notes. Hence, a proforma for injection procedures may improve documentation and will be trialled in our hospital.

Figure

TABLE: DOCUMENTATION OF INTRA-ARTICULAR AND SOFT TISSUE INJECTIONS

	N =23	%
BASIC DOCUMENTATION		
Date Of Procedure	20	87
Patient's Name	13	56.5
Patient's Date Of Birth	13	56.5
Patient's Chart Number	13	56.5
DOCUMENTATION OF PROCEDURE		
Verbal Consent	11	47.8
Documented Risks	0	0
Types Of Injection	23	100
Aseptic/No Touch Technique	12	52.2
Corticosteroid Type	15	65.2
Corticosteroid Dose	17	73.9
Local Anaesthesia Type	16	69.6
Local Anaesthesia Strength	16	69.6
Local Anaesthesia Dose	14	60.9
Immediate Complications	11	47.8
PRACTITIONER DETAILS		
Name Of Medical Practitioner	11	47.8
Signature Of Medical Practitioner	18	78.3
Medical Council Number	10	43.5

(21A161) ABSTRACT 54 REGULAR POSTER 48

Managing medications withdrawal in ANCA associated vasculitis (AAV) following remission

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Introduction

The BSR and EULAR had produced guidelines to guide maintenance therapy durations and drug withdrawal in AAV to those in remission to prevent or reduce the harm associated with treatment. Unfortunately, despite clinical and biochemical remission, patients stay on treatment due to a lack of clarity on the duration of treatment and the risk of relapse on discontinuing immunosuppression.

Aims/Background

1. To assess the rate of medication withdrawal in AAV patients in sustained remission attending our centre
2. Examine for factors associated with Glucocorticoid-dependent remission

Method

Retrospective Audit of all AAV patients attending for their care between 2015-2020.

Results

65 patients met inclusion criteria with a mean age of 60.7 years, 58.5% females and median disease duration of 5 years (21.5% > 10 years). 55.4% with organ/life-threatening disease and >50% with relapsing disease. 33.8% with GPA, 29% with eGPA and 36.9% other AAVs. 63% ANCA positive. 60% remained on glucocorticoids (GC) and 89% still on DMARDs. 23% were withdrawn from GC following 12 months into remission. Only 7.7% were off both DMARDs and GC. On multivariate regression, having a relapsing disease increases the odds of staying on GC (OR 4.00, p 0.026), while a positive biopsy (OR 0.207, p 0.04) and skin involvement (OR 0.127, p 0.006) have a protective effect against long term GC. The disease subtype, age, ANCA status and internal organ involvement did not influence the long term GC status.

Conclusions

The majority of AAV patients remained on DMARDs and GC after 5 years with only 7.7% on drug-free remission. Skin involvement and positive biopsy carry a favourable outcome towards steroid-free remission while a relapsing disease is a major factor towards steroid-dependent remission.

Figure

Variable	Univariate OR (95% CI)	*P value* *	Multivariate OR (95% CI)	*P value* *
Age at diagnosis	0.975 (0.934 – 1.0119)	0.261		
Disease duration	1.025 (0.946 – 1.110)	0.546		
Male gender	2.137 (0.753 – 6.066)	0.153		
Disease type - GPA	1.444 (0.450 – 4.641)	0.537		
Disease type – EGPA	2.80 (0.765 – 10.246)	0.120		
Negative ANCA	2.073 (0.618 – 6.954)	0.238		
Positive biopsy	0.257 (0.068 – 0.970)	0.045	0.207 (0.046 – 0.930)	0.040
Persistently positive MPO/ PR3	1.149 (0.360 – 3.672)	0.814		
Relapsing disease	3.022 (1.075 – 8.499)	0.036	4.006 (1.178 – 13.632)	0.026
Skin involvement	0.235 (0.069 – 0.803)	0.021	0.127 (0.030 – 0.547)	0.006
ENT involvement	1.867 (0.607 – 5.736)	0.276		
Pulmonary involvement	1.6 (0.587 – 4.365)	0.359		
Neurological involvement	1.109 (0.409 – 3.008)	0.839		
Renal involvement	0.350 (0.076 – 1.615)	0.178		
Organ or life threatening	1.00 (0.370 – 2.706)	1.000		

**Logistic regression*

(21A163) ABSTRACT 55 REGULAR POSTER 49

Clinical audit of Hydroxychloroquine (HCQ) prescribing and ophthalmic screening in Rheumatology Patients Are we documenting HCQ treatment duration and recommended Ophthalmic screening?

Author(s)

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Introduction

Hydroxychloroquine (HCQ) is a widely used oral conventional disease modifying antirheumatic drug (DMARD) for long-term management of various chronic rheumatological conditions including connective tissue disease and inflammatory arthritis. In general, HCQ is well tolerated and has an excellent safety profile, however, one of the most recognised and potential side effects is irreversible retinal toxicity which may progress to diffuse macular damage and may lead to central vision loss. The major risk of toxicity is dependent on daily dose and duration of therapy. The American academy of ophthalmology (AAO) recommends maximum daily dose of 5mg/kg with a cap dose of 400mg once daily. The risk of retinal toxicity up to 5 years is one percent and up to 10 years is under two percent. However, a recent large study of 2361 patients reported prevalence of retinopathy up to 7.5 percent (1). Other major risk factors for toxicity

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