CONGRESS PROGRAM

5TH WORLD CONGRESS
on Controversies, Debates & Consensus
in Bone, Muscle & Joint Diseases

Gold Coast, Australia
August 31 – September 3, 2017

bmjd-congress.org
### Thursday, August 31, 2017

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<td>Industry Symposium</td>
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<td>Networking Reception</td>
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### Friday, September 1, 2017

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<tr>
<td>08:00-08:55</td>
<td>Round Table: Patient reported outcomes in inflammatory arthritis</td>
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<tr>
<td>08:55-09:25</td>
<td>Lecture: Spinal pain in osteoarthritis: The elephant in the room</td>
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<td>09:25-10:20</td>
<td>Coffee Break and Poster Viewing</td>
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<tr>
<td>10:25-11:20</td>
<td>Round Table: First treatment choice in difficult rheumatoid arthritis</td>
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<td>11:25-12:25</td>
<td>Industry Symposium</td>
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<td>12:25-13:30</td>
<td>Lunch Break and Poster Viewing</td>
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<td>13:30-14:25</td>
<td>Round Table: What are the best ways to assess therapies in inflammatory arthritis?</td>
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<td>14:25-15:00</td>
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<tr>
<td>15:00-15:55</td>
<td>Debate: Management of comorbidities in inflammatory arthritis</td>
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<td>Industry Breakfast Symposium</td>
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<td>09:05-10:00</td>
<td>Debate: Should spondyloarthritis (SpA) be considered one single entity or should it be split into multiple diseases?</td>
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<td>10:05-11:00</td>
<td>Debate: Biologic choice in psoriatic arthritis/spondyloarthropathies?</td>
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<td>Round Table: Non-radiographic ankylosing spondylitis</td>
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<tr>
<td>14:30-15:25</td>
<td>Lecture: Practical approach to the extra-articular manifestations of rheumatoid arthritis</td>
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<td>Coffee Break and Poster Viewing</td>
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<td>15:45-16:40</td>
<td>Lecture/Round Table: Seronegative rheumatoid arthritis</td>
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<tr>
<td>07:45-08:30</td>
<td>Industry Breakfast Symposium</td>
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<tr>
<td>08:35-09:30</td>
<td>Joint IA and OA Session: Back to the future: How the microbes are shaping our thinking about musculoskeletal diseases</td>
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<tr>
<td>09:30-10:00</td>
<td>Coffee Break</td>
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<td>10:00-10:55</td>
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Dear Friends,

We would like to personally welcome you to the 5th World Congress on Controversies, Debates & Consensus in Bone, Muscle & Joint Diseases (BMJD), taking place from August 31 – September 3, 2017 in Gold Coast, Australia.

Over the years, tremendous advancements have been made in the clinical and basic science fields of bone, muscle and joint diseases. Bone, muscle and joint diseases are reaching epidemiological dimensions and treatment possibilities are expanding. These developments have created a need for debates and discussions on numerous controversial issues to optimize clinical outcomes.

The 5th edition of the BMJD Congress aims to continue facilitating effective debates on clinical and therapeutic dilemmas, supported by evidence-based medicine and expert opinions resulting in agreement on timely issues. The program provides an effective forum for discussing and debating such controversies, by allowing ample time for speaker-audience discussions with world authorities on osteoarthritis, rheumatoid arthritis, inflammatory arthritis, pain, and other musculoskeletal diseases.

We thank you for your participation and contribution to the 5th World Congress on Controversies, Debates and Consensus in Bone, Muscle and Joint Diseases (BMJD), and welcome you to the Gold Coast.

Sincerely,

Johanne Martel-Pelletier, Canada
Jean-Pierre Pelletier, Canada
Boulos Harauoi, Canada
Flavia Cicuttini, Australia
Graeme Jones, Australia
Congress Chairpersons
Congress Venue
Marriott Hotel
158 Ferny Avenue
Surfers Paradise QLD, 4217
Australia

Language
The official language of the Congress is English

Registration Desk
The registration desk will be open during the following hours:
Thursday, August 31, 2017  14:00 – 19:00
Friday, September 1, 2017  07:00 – 17:00
Saturday, September 2, 2017  07:30 – 17:15
Sunday, September 3, 2017  07:30 – 12:00

Name badge
All participants are kindly requested to wear their name badges throughout the Congress in order to be admitted to the lecture halls and scheduled activities.

Certificate of attendance (non CME/CPD)
Certificates of attendance will be available for all participants and may be collected at the Registration Desk on Saturday, September 2, 2017.

Clothing
Business casual for all occasions

Smoking policy
This is a non-smoking event

Refreshments
A Networking Reception will be held on Thursday, August 31, 2017 at 19:00.
Lunch will be served during the designated breaks on Friday, September 1 and Saturday, September 2, 2017.
Coffee will be served during the designated breaks from Friday, September 1 to Sunday, September 3, 2017.

Speakers’ Preview Room
Invited speakers and oral presenters are requested to visit the Speaker’s Preview Room to upload their presentations.

Poster Display
Please check the Scientific Program for the board number on which you should display your poster(s). Posters should be mounted between 07:30-08:30 on Friday, September 1, 2017 and removed by the end of the sessions on Saturday, September 2, 2017.

Photography
It is forbidden to take photographs, film or make recordings during the scientific program (sessions and posters).

Safety and Security
Please do not leave any bags or suitcases unattended at any time, whether inside or outside session halls.

Liability
The Congress Secretariat and Organizers cannot accept liability for personal accidents or loss or damage to private property of participants either during or directly arising from the 5th World Congress on Controversies, Debates & Consensus in Bone, Muscle & Joint Diseases (BMJD). Participants should make their own arrangements with respect to health and travel insurance.
CPD Accreditation

Royal Australasian College of Physicians (RACP)
Fellows of the Royal Australasian College of Physicians (RACP) should individually claim CPD credits in the online MyCPD program, based on the number of hours they have attended. The MyCPD program is a self-directed and self-reporting tool enabling participants to record and report on CPD activities they judge relevant to the scope of their practice.

Fellows can claim 1 credit per hour of attendance at the BMJD congress in the MyCPD program.

Royal Australasian College of General Practitioners (RACGP)
Fellows of the Royal Australasian College of General Practitioners (RACGP) may claim QI&CPD points by self-recording online at the RACGP website www.racgp.org.au and supplying a certificate of attendance with the program outline.

Congress Organizer

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**Thursday, August 31, 2017**

**16:00-16:45 Opening session**

**Chairperson:** Jean-Pierre Pelletier, Canada

16:00-16:05 General Welcome

Jean-Pierre Pelletier, Canada

16:05-16:15 Introduction

Johanne Martel-Pelletier, Canada
Flavia Cicuttini, Australia
Boulos Haraoui, Canada
Graeme Jones, Australia

**16:15-16:45 Keynote Lectures:**
The international tsunami of musculoskeletal pain: When will it hit and will we cope?

16:15 Tore K. Kvien, Norway
16:30 Kevin Pile, Australia

**17:00-18:00 Industry Symposium**

Supported by an educational/research donation by Roche

For session details, please refer to the Industry Section on page 57

18:00 Networking Reception

**Friday, September 1, 2017**

**08:00-08:55 Round Table: Patient reported outcomes in inflammatory arthritis**

**Chairperson:** Peter Nash, Australia

08:00 Patients reported outcomes value add to rheumatology practice
Helen Benham, Australia

08:15 Role of nurse practitioner
Emma Bavage, Australia

08:30 Practical application in daily practice
Kathleen Tymms, Australia

08:45 Discussion

08:55-09:25 Coffee Break and Poster Viewing

**08:00-08:55 Lecture: Spinal pain in osteoarthritis: The elephant in the room**

**Chairperson:** Graeme Jones, Australia

08:00 The source of the problem revealed
Nikolai Bogduk, Australia

08:20 The challenges of its management
Manuela Ferreira, Australia

08:40 Discussion

08:55-09:25 Coffee Break and Poster Viewing
09:25-10:20  Lecture: Dose adjustments in inflammatory arthritis  
Chairperson: Kevin Pile, Australia  
09:25  Rheumatoid arthritis  
Tsutomu Takeuchi, Japan  
09:45  Ankylosing spondylitis/psoriatic arthritis  
Paul Bird, Australia  
10:05  Discussion  

09:25-10:20  Round Table: Hand osteoarthritis: A challenging disease  
Chairperson: Caroline Brand, Australia  
09:25  Assessment of disease symptoms and patient function  
Tore K. Kvien, Norway  
09:40  Hand imaging: Its usefulness to assess disease severity, progression and prognosis  
Helen Keen, Australia  
09:55  Treatment  
Philip Conaghan, UK  
10:10  Discussion  

10:25-11:20  Round Table: First treatment choice in difficult rheumatoid arthritis  
Chairperson: Tsutomu Takeuchi, Japan  
10:25  Tablets  
Mark Genovese, USA  
10:45  Injection therapy  
Boulos Haraoui, Canada  
11:05  Discussion  

10:25-11:20  Lecture: Understanding osteoarthritis: Focus on the patient  
Chairperson: Jean-Pierre Pelletier, Canada  
10:25  Patients' perceived needs in the management of osteoarthritis  
Anita Wluka, Australia  
10:40  Development of Australian clinical care standards for osteoarthritis: Pitfalls and lessons  
Rachelle Buchbinder, Australia  
10:55  Patient phenotyping: Key to targeted therapy  
Flavia Cicuttini, Australia  
11:10  Discussion  

11:25-12:25  Industry Symposium  
Supported by Lilly  
For session details, please refer to the Industry Section on page 57  

12:25-13:30  Lunch Break and Poster Viewing
13:30-14:25  Round Table: What are the best ways to assess therapies in inflammatory arthritis?  Hall A

Chairperson:  Maxime Dougados, France

13:30  Randomized trials  Mark Genovese, USA

13:45  Database studies  Jean-Pierre Raynauld, Canada

14:00  Australian initiatives for Cochrane and clinical trials  Rachelle Buchbinder, Australia

14:15  Discussion

14:25-15:00  Coffee Break and Poster Viewing

13:30-14:25  Debate: Biomarkers usefulness in osteoarthritis  Hall B

Chairperson:  Anita Wluka, Australia

13:30  Dream  Philip Conaghan, UK

13:50  Reality based on clinical trials  Jean-Pierre Pelletier, Canada

14:10  Discussion

14:25-15:00  Coffee Break and Poster Viewing

15:00-15:55  Debate: Management of comorbidities in inflammatory arthritis  Hall A

Chairperson:  Mark Genovese, USA

15:00  It is the responsibility of the family physician  Kevin Pile, Australia

15:20  Rheumatologists should take the lead  Boulos Haraoui, Canada

15:40  Discussion

15:00-15:55  Debate: What has imaging taught us about osteoarthritis?  Hall B

Chairperson:  Flavia Cicuttini, Australia

15:00  No place in the routine assessment of osteoarthritis  Caroline Brand, Australia

15:20  What suggests that MRI should be part of the routine early osteoarthritis exam?  Johanne Martel-Pelletier, Canada

15:40  Discussion

16:00-17:00  Industry Symposium  Hall A

Supported by Pfizer

For session details, please refer to the Industry Section on page 57
Saturday, September 2, 2017

08:00-09:00  Industry Breakfast Symposium
   Supported by Novartis
   For session details, please refer to the Industry Section on page 59

09:05-10:00  Debate: Should spondyloarthritis (SpA) be considered one single entity or should it be split into multiple diseases?
   Chairperson: Huji Xu, China
   09:05  Pro (one entity)
   Maxime Dougados, France
   09:25  Con (multiple diseases)
   Peter Nash, Australia
   09:45  Discussion

09:05-10:00  Lecture: Therapies of osteoarthritis (I): The patient comes first
   Chairperson: Nikolai Bogduk, Australia
   09:05  Patients reported outcomes value added and application in daily practice
   Ilana Ackerman, Australia
   09:20  Pain relief in osteoarthritis. A friend or a foe?
   Richard Day, Australia
   09:35  Do early life factors affect the development of osteoarthritis in later life?
   Graeme Jones, Australia
   09:50  Discussion

10:05-11:00  Debate: Biologic choice in psoriatic arthritis/spondylarthopathies?
   Chairperson: Philip Conaghan, UK
   10:05  If not anti-IL-17, how do the alternatives stack up?
   Matt Brown, Australia
   10:25  IL-17 blockade should be the first choice in PSA/SA
   Peter Nash, Australia
   10:45  Discussion

11:00-11:30  Coffee Break and Poster Viewing
10:05-11:00  Round Table: Targeted therapies in osteoarthritis (II): The usefulness of intra-articular therapy in knee osteoarthritis  
Hall B

Chairperson:  Changhai Ding, Australia
10:05  Should we be worried about the placebo effect when using intra-articular therapy?  
Milton L. Cohen, Australia
10:20  Can we identify responders to intra-articular therapy in knee osteoarthritis?  
Jean-Pierre Raynauld, Canada
10:35  The future of intra-articular therapy in osteoarthritis  
Juan José Scali, Argentina
10:50  Discussion

11:00-11:30  Coffee Break and Poster Viewing

11:30-12:25  Round Table: Non-radiographic ankylosing spondylitis  
Hall A

Chairperson:  Paul Bird, Australia
11:30  Epidemiology, prevalence and diagnosis  
Maxime Dougados, France
11:50  Management and progression/prognosis  
Matt Brown, Australia
12:10  Discussion

11:30-12:25  Debate: Targeted therapies in osteoarthritis (III): Most recent advances in osteoarthritis therapy: Fact or fiction?  
Hall B

Chairperson:  Mohit Kapoor, Canada
11:30  Stem cells (basic science view)  
Yuanyuan Wang, Australia
11:45  Stem cells (clinical view)  
Patrick Hanrahan, Australia
12:00  Platelet-rich plasma  
David Connell, Australia
12:15  Discussion

12:30-13:30  Industry Symposium  
Hall A
Supported by BMS
For session details, please refer to the Industry Section on page 59

13:30-14:30  Lunch Break and Poster Viewing
14:30-15:25 Lecture: Practical approach to the extra-articular manifestations of rheumatoid arthritis  
Hall A

Chairperson: 
Susanna M. Proudman, Australia

14:30 Interstitial lung disease  
Tsutomu Takeuchi, Japan

14:45 Sjögren’s  
Maureen Rischmueller, Australia

15:00 Vasculitis  
Stephen Hall, Australia

15:15 Discussion

15:25-15:45 Coffee Break and Poster Viewing

14:30-15:25 Round Table: Symptomatic slow acting drugs (SYSADOAs) in osteoarthritis treatment: 
The clash between disbelief and hard data  
Hall B

Chairperson: 
Xiaofeng Zeng, China

14:30 The guidelines: Who to believe  
Jean-Pierre Raynauld, Canada

14:45 Most recent studies exploring effectiveness in treating symptoms and structural changes  
Jean-Pierre Pelletier, Canada

15:00 Alternative treatment to symptomatic slow acting drugs in treating symptoms and structural changes  
Catherine Hill, Australia

15:15 Discussion

15:25-15:45 Coffee Break and Poster Viewing

15:45-16:40 Lecture/Round Table: Seronegative rheumatoid arthritis  
Hall A

Chairperson: 
Stephen Hall, Australia

15:45 Is sero-negative rheumatoid arthritis a different entity: Epidemiology, clinical features?  
Tore K. Kvien, Norway

16:05 Prognosis and management  
Susanna M. Proudman, Australia

16:25 Discussion

15:45-16:40 Lecture: Assessing disease symptoms and structural changes: 
Accuracy and sensitivity is everything in osteoarthritis  
Hall B

Chairperson: 
Rachelle Buchbinder, Australia

15:45 How to assess pain in osteoarthritis  
Sharmayne Brady, Australia

16:00 Is the evaluation of articular structure by MRI valuable in the identification of osteoarthritis treatment responders?  
Johanne Martel-Pelletier, Canada

16:15 Osteoarthritis: Not just loading and age  
Flavia Cicuttini, Australia

16:30 Discussion
16:45-17:15  IA Oral Abstract and Award Presentations  
Chairperson: Boulos Harraoui, Canada  
16:45  Tele-rheumatology in South East Queensland: Evaluating a new model of care and investigation of patient perspectives  
Swapna Devadula, Australia  
16:55  Real world considerations for the use of biosimilars in rheumatology: What do Australian physicians think?  
Michael Reilly, USA  
17:05  Development and evaluation of topical liposomal formulation of diflunisal based on AKBA-phospholipid complex for synergistic and promising efficacy in arthritic conditions  
Amanpreet Kaur, India  

16:45-17:15  OA Oral Abstract and Award Presentations  
Chairperson: Johanne Martel-Pelletier, Canada  
16:45  Examining the clinical correlates of subchondral bone marrow lesions detected on two MRI sequences  
Siti Maisarah Mattap, Australia  
16:55  The course of back pain in middle-aged women over nine years: Data from the Australian longitudinal study on women’s health  
Sharmayne Brady, Australia  
17:05  Non-conventional role of pain at other sites for association between knee structural pathology and knee pain and cartilage loss  
Feng Pan, Australia  

Sunday, September 3, 2017  

07:45-08:30  Industry Breakfast Symposium  
Supported by Sanofi  
For session details, please refer to the Industry Section on page 59  
08:35-09:30  Joint IA and OA Session  
Chairpersons: Boulos Harraoui, Canada  
Graeme Jones, Australia  
08:35  Back to the future: How the microbes are shaping our thinking about musculoskeletal diseases  
Dirk Elewaut, Belgium  
09:15  Discussion  
09:30-10:00  Coffee Break  
10:00-10:55  Biosimilars: Views from 3 continents  
Chairperson: Tore K. Kvien, Norway  
10:00  European perspective  
Tore K. Kvien, Norway  
10:15  Canadian perspective  
Boulos Harraoui, Canada  
10:30  Australian perspective  
Mona Marabani, Australia  
10:45  Discussion
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<td>Controversial issues</td>
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<td><strong>Hall A</strong></td>
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<td><strong>Chairperson:</strong> Kevin Pile, Australia</td>
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<td>11:00</td>
<td>Osteoarthritis is not a disease for orthopaedic surgeons</td>
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<td><strong>Keith Lim</strong>, Australia</td>
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<td>Can you treat systemic lupus erythematos when you cannot see or recognize a target?</td>
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<td><strong>Tommy Cheung</strong>, Hong Kong</td>
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<td>Can patients with ANCA-associated vasculitis be treated with complement blockade?</td>
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<td><strong>Minghui Zhao</strong>, China</td>
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POSTERS

BMJD

5TH WORLD CONGRESS
on Controversies, Debates & Consensus
in Bone, Muscle & Joint Diseases
There has been a rapid expansion of knowledge in the field of paediatric calcium and bone disorders over the past twenty years. Advances have been made in the underlying genetic basis for many conditions in conjunction with progress in bone density and geometry imaging and the development of new treatment options.

The 2nd revised edition of 'Calcium and Bone Disorders in Children and Adolescents' presents up-to-date information on many aspects included in the 1st edition such as the physiology, pathology, diagnosis and management of numerous conditions including a chapter of case histories illustrating clinical aspects. New chapters on skeletal dysplasias, the genetics of osteoporosis, radiological imaging of bone and a practical approach to a child with recurrent fractures are included.

Providing a comprehensive update, this book is a useful clinical resource for paediatricians and specialists in endocrinology, metabolic bone disease, nephrology, rheumatology, radiology, orthopaedics and clinical genetics who may be faced with a child with a calcium and/or bone disorder.

Contents

- Foreword: Whyte, M.P.
- Preface: Allgrove, J.; Shaw, N.J.
- Voyages of Discovery: Allgrove, J.
- Physiology of Calcium, Phosphate, Magnesium and Vitamin D: Allgrove, J.
- Physiology of Bone: Grabowski, P.
- Radiology of Osteogenesis Imperfecta, Rickets and Other Bony Fragility States: Calder, A.D.
- Bone Densitometry: Current Status and Future Perspective: Crabtree, A.; Ward, K.
- A Practical Approach to Hypocalcaemia in Children: Shaw, N.J.
- Approach to the Child with Hypercalcaemia: Davies, J.H.
- A Practical Approach to Vitamin D Deficiency and Rickets: Allgrove, J.; Shaw, N.
- A Practical Clinical Approach to Pediatric Phosphate Disorders: Imel, E.A.; Carpenter, T.O.
- Primary Osteoporosis: Arundel, P.; Bishop, N.
- Osteoporosis in Children with Chronic Disease: Höglér, W.; Ward, L.
- Genetics of Osteoporosis in Children: van Dijk, F.S.
- Miscellaneous Bone Disorders: Mughal, M.Z.; Padidela, R.
- Skeletal Aspects of Non-Accidental Injury: Johnson, K.; Bradshaw, K.
- Skeletal Dysplasias: An Overview: Offiah, A.C.
- Drugs Used in Paediatric Bone and Calcium Disorders: Cheung, M.S.
- Classification of Disorders of Bone and Calcium Metabolism: Allgrove, J.
- Case Histories: Kutagampola, H.; Saraff, V.; Kumaran, A.; Allgrove, J.; Shaw, N.J.
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<td>Modulation of pain, muscle energy metabolism and muscle mass in a collagen induced arthritis model in the rat</td>
<td>Nuria Casanova Vallve</td>
<td>UK</td>
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<td>Experience with tofacitinib at the Institut de Rhumatologie de Montréal and the Centre d’Ostéoporose et de Rhumatologie de Québec. An analysis from the Rhumadata® clinical database and registry</td>
<td>Denis Choquette</td>
<td>Canada</td>
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<td>Injection site reaction (pain) associated with subcutaneous (SC) biologic agents and methotrexate. An analysis from the Rhumadata® clinical database and registry</td>
<td>Denis Choquette</td>
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<td>Influence of affected other joints in lower limbs associated with outcomes of total hip arthroplasty in rheumatoid arthritis</td>
<td>Takashi Imagama</td>
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<td>Role of CCR7 ligands CCL19 and CCL21 in rheumatoid arthritis and osteoclast activity</td>
<td>Hong-Hee Kim</td>
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The Tibial Plateau Fractures: Diagnosis and Treatment Mesenchymal Cell Activation by Biomechanical Stimulation and its Clinical Prospects

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Editor:
Francesco Atzori


About the eBook
The book is intended as a primer on Tibial plateau fractures for medical students and novice surgeons who aim to specialize in orthopaedic surgery. Readers will be able to understand how to manage relevant bone fracture cases which they encounter and will learn how to improve patient recovery after surgical procedures.

Contents
- Pathogenesis and Epidemiology of Tibial Plateau Fractures
- Tibial Plateau Fractures: Applied Anatomy and Classification
- Evaluation of Tibial Plateau Fractures: The Role of Imaging
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INVITED SPEAKERS’ ABSTRACTS

PATIENTS REPORTED OUTCOMES: VALUE ADDED AND APPLICATION IN DAILY PRACTICE
Ilana Ackerman
Monash University, Melbourne, Australia

Over the past three decades, there has been a major shift towards capturing healthcare outcomes that are patient-centred. By definition, patient-reported outcome measures (PROMs) are designed to capture the patient’s perspective, although patients may not have necessarily been involved in the development of the instrument. Routine use of PROMs can support clinical practice and healthcare delivery in a number of ways. At the clinician level, PROMs can be used to monitor short- and longer-term improvement (and deterioration), to communicate progress to patients, and as a motivational tool to promote engagement with treatment and self-management strategies. PROMs can also be used to support clinical decision-making and to quantitatively report the outcomes of treatment to referrers and health funders. At a health system level, there is now significant appetite for utilising PROMs to evaluate and improve the quality of care, and to guide healthcare funding and resource allocation decisions. In particular, there is currently an international buzz around PROMs and their potential role in facilitating ‘value-based healthcare’. Since 2012, the International Consortium for Health Outcomes Measurement (ICHOM) has developed standardised outcome measurement sets (termed ‘Standard Sets’) for a range of high-burden health conditions, as highlighted by the Global Burden of Disease Study. ICHOM is now promoting and supporting the uptake of these measurement sets in clinical practice internationally, to support value-based healthcare. The Standard Sets incorporate existing PROM instruments and new measurement items and are designed to cover outcomes that are important to patients, clinicians and health funders. This presentation will also consider the practicalities of using PROMs in clinical practice, which requires considerable planning around appropriate instrument selection, assessment intervals, information technology requirements, staffing requirements, and data management and storage. Early learnings (in terms of feasibility, challenges and key stakeholder experiences) from the implementation of the ICHOM Standard Set for Hip and Knee Osteoarthritis at the Royal Melbourne Hospital will also be shared.

PATIENT REPORTED OUTCOMES IN INFLAMMATORY ARTHRITIS: ROLE OF NURSE PRACTITIONER
Emma Bavage, Australia

For years there have been arguments both supporting and opposing the nurse practitioner (NP) role, however reviews of services provided by Rheumatology NPs across inflammatory arthritis have proven to be safe, economical, improve patient outcomes and have a high degree of patient satisfaction (Hill, Thorpe, & Bird, 2003; Ndosi et al., 2014; Ndosi, Vinall, Hale, Bird, & Hill, 2011). In 2012, Mary Daly a rheumatology Nurse Practitioner (NP) from Ireland stated that, “rheumatology advance nurse practitioners are now an essential part of our multidisciplinary team caring for patients with rheumatological conditions.” However, in Australia today the rheumatology NP is in its infancy with very few rheumatology NPs and an evolving understanding and acceptance of the role. The EULAR recommendations for the role of the nurse in the management of chronic inflammatory arthritis suggests that nurses should be encouraged to undertake extended roles after specialised training inclusive of NP training (Van Eilk-Hustings et al., 2011). As a part of the multidisciplinary team, the rheumatology NP role should be collaborative, holistic and patient focused. It is inclusive of activities such as prescribing, outpatient procedures, patient education, coordination of care and assessments. At its core is an emphasis on improving patient outcomes through providing a high level of clinical efficacy and safety.

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DOSE ADJUSTMENTS IN INFLAMMATORY ARTHRITIS
ANKYLOSING SPONDYLITIS/PSORIATIC ARTHRITIS
Paul Bird
University of New South Wales, Australia

Therapeutic options for Ankylosing spondylitis and psoriatic arthritis continue to expand, providing the clinician with an ever increasing treatment choice. The lack of specific predictors of response in individuals means that the clinician must be vigilant in detecting evidence of non-response, and be willing to adjust drug therapy or transition to alternate therapy if therapeutic targets are not fulfilled. The Treat to target paradigm provides clinicians with guidelines to assist these treatment adjustment challenges. But these can be difficult to implement in real world practice. The surrogate targets may not be useful in a specific individual or may not adequately reflect the burden of disease borne by a patient with inflammatory disease. Additionally, the question of de-escalation of therapy can be difficult when the patient has experienced prolonged remission. Continuing therapy has its own risks, and the question of when it is safe (if at all) to reduce or cease therapy is problematic. This lecture will examine the evidence for dose adjustments and therapy transition in patients with psoriatic arthritis and ankylosing spondylitis. Using a combination of published evidence and case study presentation, the lecture will provide information to assist clinicians in navigating the challenging pathway in this group of patients.

SOURCES OF SPINAL PAIN
Nikolai Bogduk
The University of Newcastle, Newcastle, New South Wales, Australia

Neither physical examination nor medical imaging has proved capable of pinpointing the actual source of back pain or neck pain (although certain exceptions apply). In the lumbar spine, there is no clinically significant association between pain and the radiographic demonstration of osteoarthritis or of spondylosis. In the cervical spine, if anything the data show that people with osteoarthritis are slightly less likely to have pain than those with no radiographic changes. Pinpointing the source of spinal pain requires invasive testing, in the form of controlled diagnostic blocks of individual structures such as the synovial joints, or provocation discography for the diagnosis of discogenic pain. For the relative prevalence of different sources of pain, distinct opposite data apply for the lumbar spine as for the cervical spine. In young patients with low back pain, the intervertebral disc is the leading source of pain; painful zygapophysial joints are rare or uncommon; while the sacroiliac joint has an intermediate prevalence. In older patients, zygapophysial joints...
pain becomes more common, and the prevalence of disc pain decreases. For neck pain, the zygapophysial joints are the leading cause, and disc pain is far less common. For patients with neck pain and headache, the C2-3 zygapophysial joint is the most common source. In patients with neck-shoulder pain, the source is the C5-6 zygapophysial joint. On MRI of the lumbar spine, high-intensity zones in a disc, and Modic lesions, if and when present, correlate strongly with the affected disc being the source of pain. Modic lesions hauntingly resemble the bone marrow changes that correlate with the affected disc being the source. Modic lesions, if and when present, correlate strongly with the affected disc being the source of pain.

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The difficulties in defining OA and the discordance between clinical and practitioners can identify populations at risk without symptoms. People present with symptoms and practitioners can identify populations at risk without symptoms. The difficulties in defining OA and the discordance between clinical and practitioners can identify populations at risk without symptoms.

AND PROGRESSION/PROGNOSIS

Management of nr-axSpA is far more complex than established ankyllosing spondylitis (AS) for multiple reasons. Only a small fraction of subjects meeting the current ASAS nr-axSpA classification criteria actually have an inflammatory disease or will progress to developing AS. This difficulty has been recognised by the pharmaceutical industry who have employed a range of modifications of the ASAS to improve their performance, with limited validation of those changes. As with AS, most nr-axSpA cases can be managed with non-biological approaches, including exercise, chronic pain coping strategies, simple analgesics and NSAIDs. Great care is required in selecting cases for biological therapy to identify the subset of nr-axSpA patients that truly have inflammatory disease, including careful clinical assessment, elevation of acute phase reactants, HLA-B27 carriage, and/or MRI/CRP negative, and non-trivial changes on the MRI. In particular, response rates to biological therapies in older, female patients with a poor response to NSAIDs, being HLA-B27 negative, and/or MRI/CRP negative, are similar to placebo treatment rates, just far more expensive and more likely to lead to toxicity. Not surprisingly, these features also appear to distinguish between those that progress to develop radiographic disease and those that don’t.
DEVELOPMENT OF AUSTRALIAN CLINICAL CARE STANDARDS FOR OSTEOARTHRITIS OF THE KNEE: PITFALLS AND LESSONS

Rachelle Buchbinder, Australia

The Australian Commission on Safety and Quality in Health Care (ACSQH) clinical care standard for osteoarthritis of the knee aims to address unwarranted variation in the management of knee osteoarthritis, as highlighted in the 2015 Australian Atlas of Healthcare Variation. It was developed. In 2015-16, ACSQH established a working group of expert clinicians from general practice, rheumatology, orthopaedics, nursing, pain medicine, pharmacy, physiotherapy, sport and exercise and radiology, as well as consumers with an experience of osteoarthritis. Development of the standard was underpinned by an evidence review of best practice care of knee osteoarthritis including guidelines from the UK National Institute of Clinical and Health Excellence, American Academy of Orthopaedic Surgeons, Royal Australian College of General Practice, Australian Knee Society and Therapeutic Guidelines: Rheumatology, as well as systematic reviews on imaging, non-surgical management and arthroscopy for degenerative knee disease. The draft document underwent public consultation. Results: Seven quality statements cover the pathway of care for people with knee osteoarthritis, including comprehensive assessment, diagnosis, education and self-management, weight loss and exercise, medicines used to manage symptoms, patient review and surgery. X-rays are indicated only if an alternative diagnosis is suspected while MRI is reserved for suspicion of serious pathology not detected by X-ray. Arthroscopic procedures are reserved for patients with true mechanical locking or another appropriate indication for these procedures. A set of indicators were also developed to support health care providers and local health services to monitor how well they implement the care described in the standard. Following revisions based upon public consultation, the Australian Health Ministers Advisory Council has approved the clinical care standard for publication. Conclusions: The Commission’s approach encourages action to reduce unwarranted variation in the management of knee osteoarthritis through evidence-based clinician and consumer education. Improved implementation of recommended care should benefit patients and reduce unnecessary costs to the health system.

THE AUSTRALIA & NEW ZEALAND MUSCULOSKELETAL (ANZMUSC) CLINICAL TRIAL NETWORK

Rachelle Buchbinder, Australia

Arthritis and musculoskeletal (MSK) conditions place an immense burden on the world’s population. They account for 18.3% of years lived with disability globally and affect 28% (>6.1 million) Australians. Their burden will rise with the ageing population and increasing obesity rates. Yet, worldwide, these conditions receive relatively less research focus compared to other less costly, less burdensome health priorities. In Australia, this appears to be mainly due to reduced research capacity relative to other fields of research, and limited coordination of research efforts across the musculoskeletal sector. Further, current research may not focus on the most important questions and there is a scarcity of high-quality implementation research focused upon closing well-recognised evidence-practice gaps. The Australia & New Zealand Musculoskeletal (ANZMUSC) Clinical Trial Network is a collaboration of leading and emerging multidisciplinary clinician-researchers and consumers formed in 2015 to address this problem. This talk will describe our progress to date and outline our plans for the next five years including identification of key research priorities; development and implementation of innovative methods to embed trials in routine care and routinely collected data such as electronic medical records and clinical quality registries; piloting ‘living’ Cochrane systematic reviews and recommendations and other strategies to ensure evidence is more rapidly taken up into practice and policy; and training and mentoring the next generation of musculoskeletal researchers to continue this work.

CAN YOU TREAT SYSTEMIC LUPUS ERYTHEMATOSUS WHEN YOU CAN’T SEE OR RECOGNIZE A TARGET?

Tommy Cheung, Hong Kong

Implementation of treat-to-target strategy has dramatically improved the treatment outcomes in patients with inflammatory arthritis. Many studies have demonstrated that induction of remission or low disease activity is associated with improved clinical, radiological and functional outcomes. Systemic lupus erythematosus (SLE) is a chronic inflammatory disease associated with progressive irreversible organ damage and early mortality. Therefore, it is reasonable to consider this treatment approach in patients with SLE. Recommendations for treat-to-target in SLE has been formulated and published recently by an international task force. In short, treatment of SLE should aim at ensuring long-term survival, preventing organ damage, and optimising health-related quality of life, by controlling disease activity and minimising comorbidities and drug toxicity. The treatment target of SLE should be remission of systemic symptoms and organ manifestations. When remission cannot be reached, the lowest possible disease activity, measured by a validated lupus activity index and/or organ-specific markers, should be achieved. Over the years, several definitions of remission have been proposed based on validated disease activity indices, such as SLE Disease Activity Index (SLEDAI) and British Isles Lupus Assessment Group (BILAG) score, yet none of them is universally accepted. On the other hand, Asia-Pacific Lupus Collaboration has developed a definition for a lupus low disease activity state. Although it has been validated in 191 SLE patients, further prospective studies are required to verify the accuracy of this definition. At present, clinician should continue to treat and monitor patients with SLE aggressively, aiming at early diagnosis and early treatment. However, it should be realized that the treatment goals may vary according to different phases of the disease and in different individuals. Therefore, treatment needs to be individualized in order to avoid over-treatment with systemic corticosteroid and immunosuppressive therapies, which may lead to more infections and cardiovascular events.

WHAT ARE THE BEST WAYS TO ASSESS THERAPIES? DATABASE STUDIES

Denis Choquette

University of Montreal, Canada

What is evidence-based medicine? The conscientious, explicit, and judicious use of current best evidence in making decisions about the care of individual patients and the concomitant use of clinical expertise and scientific research. Although randomized controlled trial is the mother of evidence for most, it remains that it does not answer all the question generated by clinical practice. The primary objective of such trial is often unique and the criteria for patient selection and the design of the protocol make it difficult to generalize its results to standard clinical practice. The appearance of biologic therapies and the obligation to apply serious pharmacovigilance protocol following their market launch have multiply the number of registries across the world. In the last fifteen years, the number of publication originating from those has exploded generating important information on efficacy and safety associated to those medications. Collecting data from clinical practice is not an easy and inexpensive task. There are also inherent flaws (selection biases, population variations and channeling) to the data collected in registries. On the other hand, registries permit comparison between different real world and unselected populations of patients and usually is more informative on real clinical practice. This presentation will examine some of these aspects.
BIOSIMILARS: THE CANADIAN PERSPECTIVE
Denis Choquette
University of Montreal, Canada

Biosimilars have appeared on the Canadian market approximately 3 years ago. They have generated different controversies over the last few years. One of them is related to its approval. Differently from other administrative areas on earth, where all the indications where granted to the new molecule, the Canadian regulatory agency, Health Canada, did not approve the first biosimilar of infliximab for inflammatory bowel diseases. This was the consequence of the activity of the gastroenterologist lobby who thought that extrapolating to IBD could be detrimental for those patients secondary to differences in glycosylation from the original molecule. Eventually, it has been approved for all indications in early 2017. This delay had as consequence to seriously impact the market penetration as GI indications form the bulk of use of infliximab. After, three years availability, less than 1% of the infliximab market is occupied by this biosimilar. In the last year or so, two biosimilars of etanercept have appear in Canada, Brenzys® from Samsung/Merck co-marketing and Erelzi® from Sandoz/Novartis. Etanercept being one of the market leader, usage by rheumatologist could be more important but its adoption is still very slow. The reasons for that phenomenon will also be explore during the presentation. This presentation will also focus on the different aspects of reimbursements as notice of compliance is granted at the federal level but its reimbursement is covered either through private insurance companies for 50% of the Canadian population or public payers for the other part. Which patient population should or will be the target for usage? Several measures are also used by payers to assess patient improvement or deterioration of clinical status would be inadequate. In addition, these measures are also used by payers to demonstrate necessity of utilization and adequate response for the treatment and prevention of OA. In OA we target both inflammatory molecules including cytokines and adipokines that have been shown to damage joints. Circulating levels of inflammatory cytokines, and low grade synovitis are associated with cartilage loss. However levels of the adipokine leptin are independently associated with increased cartilage loss, suggesting a systemic mechanism for the effect of obesity on knee cartilage. There is also evidence that the metabolic syndrome is associated with OA in some, but not all joint groups. Thus the old paradigm of OA being a degenerative, ‘wear and tear’ disease of older age and not an inflammatory disease, has been challenged as well as the notion that loading is a central mechanism. This new paradigm offers the potential for novel approaches to prevention and treatment of OA.

ASSESSING DISEASE SYMPTOMS AND STRUCTURAL CHANGES: ACCURACY AND SENSIBILITY IS EVERYTHING
OSTEOARTHRITIS: NOT JUST LOADING AND AGE
Flavia Cicuttini
School of Public Health and Preventive Medicine, Monash University
Melbourne, Australia

Osteoarthritis (OA) is a disease that increases in prevalence with age. However, it is not simply a disease of aging, but the consequence of an accumulation of lifestyle risk factors over the years interacting with a genetic predisposition. OA results from a complex set of pathological processes which result in joint damage. Loading of joints has been thought to be one such process and, indeed, the mechanism by which obesity, the most common modifiable risk factor for OA, affects joints. However, obesity is a strong risk factor for hand OA and given we do not walk on our hands, the effect of obesity through loading of the joints cannot be the whole explanation. By using magnetic resonance imaging, where it is possible to non-invasively examine joints across the disease spectrum, and importantly before symptoms develop, it has been possible to explore the complex effect of obesity on joints and in particular the role of loading and other potential mechanisms. This work has helped unravel the complex nature of knee OA. There is evidence that obesity effects joints, not just through loading, but also metabolically-driven inflammation. A large body of evidence has demonstrated that an increase in fat mass is associated with cartilage defects, early damage to knees that predate the development of symptomatic OA, accelerated loss of knee cartilage and an increased risk of joint replacement. An increase in fat mass is also associated with more back pain and disability and foot pain. The findings that fat mass is associated with early through to late OA, independent of obesity, suggests that the effect of obesity on the joint may not just be via increased loading of the joint, but also via metabolically driven inflammation. Body fat is not an inert structure but rather a highly metabolically active tissue that produces inflammatory molecules including cytokines and adipokines that have been shown to damage joints. Circulating levels of inflammatory cytokines, and low grade synovitis are associated with cartilage loss. However levels of the adipokine leptin are independently associated with increased cartilage loss, suggesting a systemic mechanism for the effect of obesity on knee cartilage. There is also evidence that the metabolic syndrome is associated with OA in some, but not all joint groups. Thus the old paradigm of OA being a degenerative, ‘wear and tear’ disease of older age and not an inflammatory disease, has been challenged as well as the notion that loading is a central mechanism. This new paradigm offers the potential for novel approaches to prevention and treatment of OA.

PRO’S IN DAILY PRACTICE. IS THERE A VALUE IN CLINICAL PRACTICE?
Denis Choquette
University of Montreal, Canada

Practicing purely clinical rheumatology has changed drastically over the last 15 years. At the end on the nineties, in daily practice, there were no such thing as joint count, disease activity score, evaluation of function, fatigue and any other patient related outcomes. Nowadays with the implementation of newer treatment strategies including combination therapy, biologic therapy and optimization of therapy, practicing rheumatology without measuring disease activity with validated instruments such as DAS, CDAI, SDAI, and using regularly self-administered PRO’s such as HAQ, BASDAI, BASFI to assess patient improvement or deterioration of clinical status would be inadequate. In addition, these measures are also used by payers to demonstrate necessity of utilization and adequate response for continued reimbursement. Rhumadata®, an electronic medical record initially designed as a database tool, is used in daily practice to improve patient follow-up as well as collect different variables in a longitudinal prospective manner and permit comparative analysis of effectiveness and safety in different cohorts of patients affected by rheumatoid arthritis, psoriatic arthritis, ankylosing spondylitis and other SpA. Implementing such a tool in clinical practice has facilitated using targeted therapy strategies. It also permit to evaluate performance of a given rheumatologist practice as well as comparing with a given group of practitioners. This presentation will illustrate the different features and advantages of it use.

UNDERSTANDING OSTEOARTHRITIS: FOCUS ON THE PATIENT PATIENT PHENOTYPING: KEY TO TARGETED THERAPY
Flavia Cicuttini
School of Public Health and Preventive Medicine, Monash University
Melbourne, Australia

Osteoarthritis is a heterogeneous disease. There is evidence that different joint groups have different pathological mechanisms for disease development and progression and, that even within the same joint, different mechanisms operate. Understanding this is important because it may explain why the ‘one size fits all’ approach to disease treatment and prevention is unlikely to work. This may be one explanation for the lack of effective therapeutic approached available for the treatment and prevention of OA. In OA we target both symptoms and disease progression. These are both important, complementary and need to be considered in parallel. If we consider knee pain, there is clear evidence that the causes of pain are complex and relate to both factors within and outside the patient. Factors within the patient include psychosocial factors, structural abnormalities within the joint and central pain sensitization. Each of these offers the opportunity to phenotype patients so that therapies aimed at improving pain can target the particular mechanism important for that patient, thus focussing therapy on the patient sub-populations most likely to respond to treatment. Similarly, if we consider the potential to develop a disease modifying agent, then new knowledge on the pathogenesis of OA offers great potential targets and patient sub populations. For knee OA, major strides have been made in understanding the pathological processes underpinning disease development and progression. There is evidence that low grade synovitis and the presence of bone marrow lesions identify two pathological processes and sub populations that can be targeted. There is recent evidence that the use of the bisphosphonate, zolendronic acid, results in improvements in knee pain and reduction in size of bone marrow lesions in those with knee OA and bone marrow lesions. Work is currently underway to determine whether these effects translate to slowing of knee pain.
carilage loss. Among those with knee OA, approximately 30% have evidence of synovitis. The presence of synovitis predicts those with increased knee pain and accelerated structural damage. Targeting synovitis is an area of current investigation. In the area of prevention of OA, there is evidence that phenotyping of patients is important. For example, the effect of physical activity on knee health is significantly influenced by the state of the underlying joint. Similarly the effect of obesity is worse in those with underlying structural knee changes. We are still waiting for effective approaches to the prevention and management of OA. It is likely that until we focus on patient phenotypes, we will continue to fail.

SHOULD WE BE WORRIED ABOUT THE PLACEBO EFFECT WHEN USING INTRA-ARTICULAR THERAPY?
Milton Cohen
St Vincent’s Clinic and UNSW Sydney, Sydney NSW, Australia

Why might any therapeutic intervention apparently be “successful”? Would the placebo effect (or was it because anything was done, or was it attributable to a specific effect of therapy? Give the high face validity of intra-articular therapy, especially in a predominantly biomedical approach to illness and disability, it is important to distinguish between its true effect and its contextual (or placebo) effect. In turn the potential for a true effect of intra-articular therapy depends on the biological rationale for its use. This presentation will look at evidence, not about whether or why intra-articular therapy might “work”. In this arena contextual effects have major implications: we should be more concerned about recognising and understanding them than worried about them.

TREATMENT OF HAND OSTEOARTHRITIS
Philip Conaghan, UK

The variety, and evidence for therapeutic benefit, of hand osteoarthritis (OA) treatments remain very limited when compared to the corresponding literature on knee OA. As well, given the common hand OA phenotypes, many studies have not clearly distinguished these, often not reporting thumb vs finger disease. A relatively large number of systematic reviews (SRs) have examined the published evidence. Looking at all RCTs for hand OA, a recent update of non-surgical therapies for hand OA supported the therapies recommended in the EULAR 2007, ACR 2012 and NICE (UK) 2014 guidelines. Generally these guidelines suggest treatment tailored to individual hand problems as well as recognising the presence of co-morbidities; treatment is a combination of pharmacological and non-pharmacological therapies. The therapies recommended included topical and oral NSAIDs, opioids, muscle strengthening exercises, joint protection and devices. Surprisingly, given the large numbers of studies showing the benefits of exercise in knee OA, a Cochrane review of exercise for hand OA could only include 7 studies. Effects on hand pain, stiffness and function were small and the authors questioned the clinical relevance of the benefits. In terms of local therapies, two recent SRs with differing study inclusions have suggested limited or no symptom benefit for intra-articular corticosteroid injections in carpometacarpal joint OA; one of the SRs also suggested no benefits from hyaluronan injections, with possible benefit in small number studies of interphalangeal joint disease. Small study numbers and clinical heterogeneity were noted. Another SR suggested that splinting was beneficial for base of thumb OA, though multimodal interventions were more effective. A range of surgical interventions are used for thumb base disease including trapeziectomy and small joint arthroplasty for proximal interphalangeal joints using implants; there is little randomised evidence on the benefits of these therapies. Disease modifying anti-rheumatic drugs (DMARDs) have been used in rheumatoid arthritis for their effect on the primary disease inflammatory process, resulting in reduction in symptoms and retardation of structural joint damage. Given the known role of inflammation in the OA process, and modest analgesic effect sizes of NSAIDs and intra-articular corticosteroids, the last 5 years has seen a number of studies reporting the effects of DMARDs in hand OA. A RCT of oral prednisolone 5mg daily did not produce symptomatic benefits. 2 large multicentre trials of hydroxychloroquine in hand OA have reported no benefits, and in one of these studies, benefits were not found when adjusting for baseline ultrasound-detected synovitis or degree of radiographic damage. Several recent studies have investigated the effects of anti-TNF therapies in OA, with variable results. Studies of erosive hand OA have resulted in reduced swollen joint counts and reduced structural deterioration in joints with baseline clinical synovitis, but generally there have been no analgesic benefits. Further consideration of both appropriate inclusion phenotypes and tissue targets is still required if we are to advance hand OA treatment.

TARGETED THERAPIES IN OA (III): PLATELET-RICH PLASMA
David Connell, Australia

Platelet Rich Plasma (PRP) is derived by centrifuging whole blood taken from the patient. The process separates blood plasma from the other blood constituents and concentrates the number of platelets by about six fold. Normal platelet counts in human blood range between 150,000/µL and 350,000/µL. Platelets are a major reservoir of growth factors in the human body and play an important role in many processes such as coagulation, immune response, angiogenesis and the healing of damaged tissues. The main growth factors in PRP are platelet-derived growth factor (PDGF), transforming growth factor (TGF), platelet factor interleukin (IL), platelet-derived angiogenesis factor (PDGF), vascular endothelial growth factor (VEGF), epidermal growth factor (EGF), insulin-like growth factor IGF and fibronectin. PRP has been used to treat tendon disorders and osteoarthritis, under the premise that these growth factors can be used to reduce inflammation, halt degeneration and possibly stimulate repair. Unfortunately, the technique has been adopted as a panacea for a myriad of disorders including ligament ruptures, muscle tears, chronic back disorders and even migraine. The cosmetic industry uses PRP in the treatment of many skin disorders including wrinkles, so-called “vampire facials”. There is a mountain of anecdotal evidence for the use of PRP, and there are many strong advocates for its usage. However, rigorous scientific evidence remains weak. With respect to osteoarthritis, few good alternatives exist (other than joint replacement surgery), and this has helped to foster the practice. Many patients do report short term relief of symptoms following PRP therapy. Often treatment is patient-driven following favourable reports from the media, internet, acquaintances or their own experience. It has become the fashion to discredit PRP in academic
circles, and often criticism is directed by commentators with little or no practical experience in PRP therapy. This lecture will review our personal experience of more than 20,000 PRP injections performed over the last 15 years, as well as take a somewhat critical review of the evidence.

PAIN RELIEF IN OSTEOARTHRITIS. A FRIEND OR A FOE
Richard Day, Australia

Pharmacotherapy in OA has evolved but always with the goal to relieve the predominant complaint of patients, namely pain. Stiffness, loss of function and progression are other motives, but are trumped by pain relief. Evolving understanding of the heterogeneous mechanisms involved in OA, but notably the contribution of inflammation (1), has also influenced selection of analgesics. Analysis of pain itself in people with OA has become more sophisticated from nociceptive and/or inflammatory to neuropathic with central nervous system sensitization, and sometimes all mechanisms contributing in an individual patient. Coincident was a swing towards more liberal attitudes to opioid containing analgesics in the late 1900s now replaced with a backlash related to evident widespread dependence, addiction, and even deaths as well as uncertainty about efficacy. Reversion to paracetamol/acetaminophen because of its safety profile, despite emerging concerns for renal, cardiovascular and respiratory adverse effects, has been muted as uncertainty about efficacy in OA has gathered momentum. Enthusiasm for NSAIDs has waned in recent years as efficacy data for pain relief are not impressive and the toll from adverse effects related to prostaglandin synthesis inhibition is considerable especially in older patients with cardiovascular, gastrointestinal and renal risk factors. The promise of selective COX II inhibitors has faded as the significant risks from cardiovascular adverse event has been identified. As studies emerge questioning not only the value of intra-articular injections of glucocorticosteroids and hyaluronan formulations but also whole practiced interventions such as arthroscopy, largely primary care physicians, are increasingly limited in the options available to them and their patients. The importance of preventative measures such as protection against joint injury, weight reduction and enhanced general physical fitness, with proven significant effect sizes for symptom reduction and functional improvement is clear, but widespread implementation is now an important challenge. Pharmacotherapy as an adjunct is valuable but its role is changing to support improved function with less focus on pain reduction. Careful attention to the elements of the "bio psycho social" framework for OA patients is critically important in order to design a personalised management plan. This is especially the case where a diagnosis of fibromyalgia is a contributor to a patient's pain experience and distress. Adjuvant analgesics of the tricyclic or serotonin-noradrenaline reuptake inhibitor anti-depressant or gabapentinoid classes may be a useful component of the management in these patients. Pain relief is a 'friend' in OA patients certainly but if it is achieved by early intervention with physical and lifestyle options this is optimal and safe. If pain relief is dealt with by pharmacotherapy primarily, as is unfortunately more the norm, then there is significant opportunity cost in terms of progression of OA and the comparatively limited effect size. Every pharmacotherapeutic option from the simple analgesic, anti-inflammatory, opioid, adjuvant or intra-articular delivered has adverse reaction potential as well. Our focus in OA ought to be from a public health/preventative perspective. We need to act on a wider scale those proven injury protection and prevention programmes, improved function is a major goal, there are significant risks from pharmacotherapy and risks need to be assessed in each individual. This approach provides optimism that truly personalized management is a realistic goal.

References:

NON RADIOGRAPHIC AXIAL SPONDYLOARTHRITIS
Maxime Dougados, France

The axial symptoms are the most frequent in patients suffering from spondyloarthritis. While investigating these patients (e.g. chronic inflammatory back pain and/or buttock pain) using conventional technique such as plain pelvic X-Ray, the observation of the presence of abnormalities at the sacroiliac joint level (e.g. irregularities, subchondral sclerosis,...) permits to clarify these patients as suffering from axial radiographic spondyloarthritis (also called ankylosing spondylitis): this structural damage is only observed in 15 to 20% of patients suffering from recent (e.g. <3 years) symptoms suggestive of spondyloarthritis (e.g. inflammatory back pain, buttock pain, dramatically improved by NSAIDs and past history or current symptoms of other clinical features of spondyloarthritis) (e.g. peripheral enthesitis, peripheral arthritis, extra-rheumatological features such as psoriasis, uveitis, inflammatory bowel disease)). These patients are considered as suffering from axial non-radiographic spondyloarthritis. A part from the interview and/or the physical examination, some investigations might be helpful to confirm the diagnosis (e.g. presence of HLA B27, abnormal CRP, presence of inflammation (bone, marrow edema) at MRI of the sacroiliac joints). The diagnosis is based on the opinion of the rheumatologist but can be facilitated by the existing classification criteria and in particular the ASAS criteria. The treatment regimen is identical to the one of patients with radiographic SpA. The current remaining question is the prediction of subsequent radiographic structural damage (e.g. the risk of switching from the status of non-radiographic to the one of radiographic). In this area, recent information is now available based on the data observed in the European cohorts such as GESPIC in Germany or DESIR in France.

SHOULD SPONDYLOARTHRITIS (SPA) BE CONSIDERED ONE SINGLE ENTITY OR SHOULD IT BE SPLIT INTO MULTIPLE DISEASES? DEBATE: PRO
Maxime Dougados, France

For a naïve clinician, it is tempting to consider a patient with a painful red eye different than a patient with heel enthesitis and/or a patient with inflammatory back pain. These different clinical presentations (e.g. axial symptoms, peripheral articular disease, peripheral enthesitis, extra-rheumatological features such as uveitis, psoriasis, inflammatory bowel disease (IBD)) are strong arguments in favor to consider them as distinct different diseases. However, there are also many arguments to suggest that these different clinical manifestations should be considered as a single entity:
- The familial aggregation of the different clinical presentation with, for example the possibility to see in a same family some members suffering from axial disease, other from IBD and other from psoriasis
- The possibility to observe in a single patient these different clinical manifestations during different times of his/her life (e.g. reactive arthritis at 19 years old, uveitis at 25 years old, axial disease at 35 years old,...)
- Identical physiopathological pathways with as an example the importance of the IL-17 pathway.
- Identical biologic treatment response with as an example a successful treatment effect of TNF-blockers and/or IL17 inhibitors for different clinical manifestations of spondyloarthritis.

Therefore 60 years after, we confirm that Dr Wright and Moll were right by proposing the concept of spondyloarthritis and that we have now to consider spondyloarthritis as a disease with the possibility to add several adjectives to better describe a patient (e.g. axial spondyloarthritis, peripheral spondyloarthritis, ...).
BACK TO THE FUTURE: HOW THE MICROBES ARE SHAPING OUR THINKING ABOUT MUSCULOSKELETAL DISEASES
Dirk Elewaut
Unit for Molecular Immunology and Inflammation, Inflammation Research Institute, VIB-Ghent University and Department of Rheumatology, Ghent University, Belgium

Over the past years it became clear that an intriguing relationship exists between mucosal surfaces and inflammatory joint diseases. The best studied example is spondyloarthritis (SpA) where strong evidence links gut inflammation to musculoskeletal manifestations such as spondylitis, sacroiliitis, as well as peripheral arthritis and enthesitis. Even in the absence of clinical gastrointestinal symptoms SpA patients display histological signs of inflammation in about half of them. This has been linked with evolution to Crohn’s disease and Ankylosing Spondylitis. The introduction of new sequencing technologies has permitted to study gut microbiota in an unbiased manner. Based on the association with inflammatory bowel diseases, several groups have embarked in studying intestinal microbiota and found evidence for dysbiosis. Of interest, several microbiota have been linked to disease activity in SpA such as Dialister and most recently Ruminococcus Gnavus. However, also in rheumatoid arthritis (RA) and psoriatic arthritis (PsA) shifts in intestinal microbiota have been found but in addition, other sites of host-microbial interplay have also been found such as the oral cavity, the lung in RA and skin (PsA). How dysbiosis modulates inflammatory features at distant sites such as joints is also an area of intense research and may involve distinct mechanisms that will be discussed in the lecture.

THE CHALLENGES OF MANAGING SPINAL PAIN
Manuela Ferreira
Institute of Bone and Joint Research, The Kolling Institute, Sydney Medical School, The University of Sydney, Australia

The impact of ageing on the spine is significant, often resulting in pain, stiffness and decreased physical and cognitive function for the older patient. Despite its impact, however, spinal pain is poorly managed in the older population with limited knowledge of safe and effective treatment strategies, given older people are largely underrepresented in spinal pain research. This presentation will discuss the most recent evidence on the efficacy and safety of pharmacological, conservative and surgical approaches for the management of spinal pain in the older patient. The challenges in managing spinal pain in the older patient, including polypharmacy and the impact of comorbidities on the prognosis and management strategies of older people with low back pain will also be considered. The presentation will also include a discussion of ways to move forward including the proposal of contemporary and evidence-based models of care for low back pain. The presenter will draw from her own research as well as other key studies in the area.

FIRST TREATMENT CHOICE IN DIFFICULT RHEUMATOID ARTHRITIS: TABLETS
Mark Genovese, USA

Improved understanding of the immunopathogenesis of Rheumatoid Arthritis (RA) has paved the way for new specific immune interventions for this inflammatory disease. Over the past two decades we have seen the advent of new biologic and small molecule approaches to the treatment of active RA. The understanding of the potential utility of these approaches has been driven by well-designed randomized controlled trials. These controlled trials have been conducted across a range of patient populations from early treatment naive disease to the more refractory biologic inadequate responder populations. The sample size and power provided by these studies has led to both regulatory approval and to a strong understanding of potential benefits to be expected in the clinic. Importantly these trials have also provided a level of comfort and reassurance regarding the types of common safety events that may occur. However, there are many ways to assess therapies, of which randomized controlled trials are only one, and each can provide unique insights into the benefits and risks of an individual therapy.

WHAT ARE THE BEST WAYS TO ASSESS THERAPIES IN INFLAMMATORY ARTHRITIS? RANDOMIZED TRIALS
Mark Genovese, USA

Improved understanding of the immunopathogenesis of Rheumatoid Arthritis (RA) has paved the way for new specific immune interventions for this inflammatory disease. Despite these advances we lack specific biomarkers or surrogates to predict which patient will respond to an individual agent or combination of agents. The goal of any therapy initiated in RA (including the patient with difficult disease) is to provide meaningful benefit in a safe, convenient, and economically sustainable fashion. Currently existing conventional synthetic DMARDs and new targeted synthetic DMARDs should help us achieve this goal. Current guidelines from EULAR and the ACR provide guidance to both practitioners and payers regarding general approaches.

STEM CELLS IN OSTEOARTHRITIS
Patrick Hanrahan, Australia

Stem Cell treatment appears to offer considerable promise for the treatment of numerous diseases, including osteoarthritis (OA), a disease characterized by the loss of articular hyaline cartilage. Unfortunately, this has not translated into reliably effective clinical treatment, although there are centres that do offer this. There are numerous difficulties in the conduct and interpretation of clinical trials related to uncertainty about the numerous variables involved. This includes whether the cells should be derived from bone marrow, synovial tissue, nasal cartilage, adipose tissue or peripheral blood, the mode of preparation and the route of delivery. Currently there is no standardization in any of these variables, nor in the regulatory approval of studies, or indeed therapeutic use. Recent clinical trials indicate that there remains significant potential for appropriate treatment but clinical use should be delayed until appropriate research methodology is able to demonstrate the most appropriate technique and indications.

FIRST TREATMENT CHOICE IN DIFFICULT RHEUMATOID ARTHRITIS: INJECTION THERAPY
Boulos Haraoui, Canada

We have witnessed in the last two decades a major expansion and improvement in the drug armamentarium for the management of rheumatoid arthritis (RA). We are also lucky to have drugs that can be delivered by different routes, orally or by injections which can be tailored to the needs of individual patients.

a- Most RA treatment recommendations advocate the use glucocorticoids (GC) as a bridge therapy while awaiting the kick-in effect of the DMARDs and then to taper GC as rapidly as feasible. It is the tapering that has been the most difficult part as patients tend to get used to the anti-inflammatory effect and the general well being provided by GC. Luckily, we can avoid that difficult aspect by using intermittent IA or IM injections instead of oral prednisone which provide at least if not a superior benefit.

b- Methotrexate (MTX), the anchor drug for the treatment of RA has better efficacy and possibly better tolerability when given subcutaneously compared to orally. This route of administration should be preferred especially in patients with severe active RA, in order to optimize drug delivery and maximize the rapidity of response.

c- Bone anti-resorptive medications are often prescribed to patients with RA. The injectable bisphosphonates or denosumab allow for less
frequent administration and improved adherence for a similar global cost.

When csDMARDs (in mono or combination therapy) fail to adequately control RA, all guidelines recommend the addition of injectable bDMARD or oral tsDMARDs which happen to have equal efficacy and comparable safety. The advantage of the injectable medications is the reduced frequency of administration which improves adherence and the flexibility of dosing allowing increases, reductions of doses or spacing of the administration interval.

Given all these advantages, especially in patients who also happen to take several other drugs for other concomitant medical conditions, the injection route for several of our medications provide a better alternative.

MANAGEMENT OF COMORBIDITIES IN INFLAMMATORY ARTHRITIS. DEBATE: RHEUMATOLOGISTS SHOULD TAKE THE LEAD
Boulos Haraoui, Canada

Inflammatory arthritis as well as their drug treatment increase the likelihood of certain comorbidities. The most common ones based on several surveys and observational studies are: Cardio-vascular events, infections, osteoporosis, certain neoplasms and depression. It is therefore the role of the rheumatologists to at least screen their patients for the risk factors of these co-morbidities and educate them about their consequences. In certain circumstances, it is even upon the rheumatologist to initiate certain preventive measures. It is also the role of the rheumatologist to educate the primary care physician about the occurrence of these comorbidities in order to coordinate care. As certain conditions are beyond the expertise of the rheumatologist, a support team should be organised including allied health professionals as well as a network of physicians-specialists to refer to. Several national and international recommendations for the management of comorbidities have been published and give practical guidance to rheumatologists. We shall briefly review how such a strategy can be successfully applied in everyday practice.

DO EARLY LIFE FACTORS AFFECT THE DEVELOPMENT OF OSTEOARTHRITIS IN LATER LIFE?
Graeme Jones, Australia

This overview will cover 3 areas:
1. Are early life exposures important for disease in general?
2. Are early life exposures important for musculoskeletal disease?
3. Is there any evidence for joints?

There are now numerous studies linking in utero exposures to later disease. Overall, there are modest associations in humans but data is exclusively observational and prone to confounding. In addition, any effect on disease is many years off so it has received limited attention from funders. There are numerous studies suggesting peak bone mass is at least as important as bone loss in later life for fractures. There is some evidence implicating that in utero diet, breastfeeding, body composition and physical activity may have long-term effects on bone after the exposure has ceased. This implies they may program bone responses. Studies of childhood exposures and later OA are limited. Birthweight in humans has inconsistent associations suggesting very early life exposures may not be that important although there is some data suggesting severe dietary restriction may be a risk factor in animals. Data to date would suggest knees should be exercised vigorously in childhood while avoiding injury. Contact sports appear particularly bad. Injury in childhood does not appear as bad as injury in adulthood probably reflecting the ability of bone and cartilage to remodel in childhood. Obesity appears to be less of a risk factor for joint damage in childhood itself but acts as an antecedent for later risk in an overweight child is much more likely to become an overweight adult and the latter increases the risk of OA. Of note, obesity in childhood increases the risk of injury and the development of pain. In summary, most diseases appear to start in childhood but the data for osteoarthritis are limited and much more work needs to be done before preventive strategies can be implemented.

HAND IMAGING: ITS USEFULNESS TO ASSESS DISEASE SEVERITY, PROGRESSION AND PROGNOSIS
Helen Keen, Australia

Osteoarthritis is the most common form of arthritis, and often involves the hands. Pain is the reason most people seek medical attention and is the most important symptoms for patients. Painful hand OA is associated with both reduced health-related quality of life and direct and indirect health costs. Imaging is fundamental the understanding of this disease: in recent years imaging techniques have been utilise to assist our understanding of relationship between structure and pain in OA, but also our understanding of the pathogenesis, progression and prognosis. Increasingly as imaging techniques are validated, they are being used as outcome tools in clinical trials. This talk will briefly review the imaging techniques utilised in hand OA, their validity, and how they have helped us understand hand OA, progression and prognosis.

BIOSIMILARS: EUROPEAN PERSPECTIVE
Tore K. Kvien
Dept. of Rheumatology, Diakonhjemmet Hospital, Oslo, Norway

Biosimilars represent a new opportunity for lowering the cost of treatment with biological disease-modifying antirheumatic drugs (bDMARDs). Studies have demonstrated large inequities in the access to bDMARDs across countries and this inequality is related to economic parameters such as gross domestic product. Thus, reduced costs of bDMARDs should potentially lead to better treatment for more patients, especially in countries with low economy. The regulatory agencies in Europe and in US have set up strict guidelines for approval of biosimilars which include extensive pre-clinical examinations (structure and functional characteristics) but less clinical data than for an originator product. The clinical part of this comparability exercise focuses on efficacy, safety, pharmacokinetics as well as immunogenicity. Three biosimilars have till now been approved in Europe with marketing authorization. CT-P13 is a biosimilar infliximab which was approved in the fall 2013 (marketed in most EU countries from 2015 with the brand names Remsima® and Inflectra®). SB4 (biosimilar etanercept (Benepali®)) and SB2 (Biosimilar Flixabi®) were recently approved in Europe. It is a growing acceptance about the use of these biosimilars, also in extrapolated indications when treatment are started or changed for medical reasons. Most rheumatologists will consider the biosimilars on the same level as originator products in these situations. However, replacing originator product by a biosimilar is more controversial, but is important because of the large cost-savings. Switching evidence is available from four different types of studies which will be discussed:
- Extension of phase 3 RCTs
- Switching within RCTs
- Real life data
- Randomizing patients on stable long-term treatment

In the NOR-SWITCH trial – totally funded by the Norwegian government – 482 patients on stable treatment with Remicade® across 6 indications (RA, SpA, PsA, UC, CD, PsO) were randomized to continued treatment with the reference product or switch to CT-P13 (Remsima®). The primary endpoint was occurrence of disease worsening, defined by the disease-specific composite measures or clinically significant worsening leading to a major change in treatment. Overall, disease worsening occurred in 26.2% of patients who continued treatment with the originator infliximab and in 29.6% of patients who switched to CT-13. The adjusted treatment difference (95% CI) was -4.4% (-12.7 – 3.9) which was within the prespecified non-inferiority margin of -15%. The occurrence of adverse events, including infusion reactions, was similar across both groups. There were no differences between the two groups in secondary endpoints including time to study drug discontinuation, remission rates, CRP levels, anti-drug antibody formation and drug trough levels. In conclusion, the NOR-SWITCH study demonstrated that switching to...
CT-P13 was not inferior to continued treatment with originator infliximab, adding to the increasing real-world evidence that switching from originator to biosimilar bDMARD is safe and efficacious.

OSTEOARTHRITIS IS NOT A DISEASE FOR ORTHOPAEDIC SURGEONS

Keith Lim, Australia

It should be a given that patients with knee or hip OA who are refrained by GPs should be triaged and assessed by an OA service run by a multidisciplinary team including musculoskeletal physiotherapy, dietetics preferably with medical (rheumatology) input. Various OAHKs have been a part of the Victorian health landscape for the last decade. Statistics show that the majority of the referrals will not require surgery or surgical opinion. This figure is enhanced further when there is a rheumatologist running the programme. About 1 in 4 TKRs end up with a less than satisfactory result and given that a large proportion of TKRs done in Australia are done privately this may have a significant influence in outcomes. The best results for TKR are for those with the most severe disease, who have had severe functional disabilities, and pain, having tried and exhausted conservative therapies. There is wisdom in managing OA well and giving a lag time before surgery. Providing an avenue to allow a re-evaluation of priorities, as well as an alternative to surgery often helps. I will show results from our studies to this effect, and also suggest some reasons to explain them. The orthopaedic surgeon’s valuable time and talent is best served by attending to those who are ready for surgery, worrying about the technical aspects of surgery, and concentrating on those who are more likely to do well. Surgery should only be undertaken with the best interest of the patient in mind. In the public service, there has to be a rationalisation of cost and therapies, especially TJR. The ultimate gatekeepers should be those running the service one step prior to surgery, with protocols and criteria worked out closely with the orthopaedic surgeons. Different health systems will have their own health priorities and funding ability. The key requisite skills fundamental to good conservative care; which are, the ability to listen, education, physical therapy, weight loss, rationalising of medications, dealing with co-morbidities, management of chronic pain issues, and psychological support are best found in the multidisciplinary team of an OA centre, not with orthopaedic surgeons. This implies a continuum of care in partnership with the patient, the carer, and the primary care doctor. The practice of leaving a suffering patient on a conveyor belt to wait to see a surgeon for the next one to two years and not being managed in the meantime is demeaning to the patient and counterproductive. Centres where this practice is still being done should invest in a proper OAHK service. Herein lies one secret to better use of our valuable health resources.

BIOSIMILARS ON THREE CONTINENTS: AUSTRALIA

Mona Marabani, Australia

The first biosimilar for the treatment of inflammatory rheumatic diseases was approved in Australia in December 2015. Currently there are two approved infliximab biosimilars and one etanercept biosimilar available. Access to bDMARDs is tightly restricted and is available only to patients with very high disease activity who have failed to respond to standard therapies over a period of months, depending on the indication. Australia has a single payer system for the reimbursement of pharmaceuticals. However, hospitals are funded and administered by state governments and their drug budgets and spending do not appear on the national Pharmaceutical Benefits Scheme (PBS). Government policy has adopted a default reimbursement of pharmaceuticals. However, hospitals are largely be dispensed from retail pharmacies. This will be a more practical issue for patients such as managing different delivery devices and support programmes. Patient co-payment is the same for both the originators and biosimilars has already been adopted, and this can be seen as a missed opportunity. There will also be practical issues for patients such as managing different delivery devices and support programmes. Patient co-payment is the same regardless of whether they are dispensed the originator or the biosimilar. Uptake of biosimilars has been modest to date. Assessment of market penetration is made more difficult by the fact that drugs given by IV infusion are usually administered in hospitals and do not appear in PBS figures. An etanercept biosimilar was launched in April 2017, and, as a self-administered injection, it will largely be dispensed from retail pharmacies. This will be a more transparent reflection of biosimilar uptake. Meanwhile the government is considering the application of uptake drivers to boost their market share, despite the fact that significant reduction in the price of both the originators and biosimilars has already been achieved. The stringent restrictions on the use of bDMARDs remain in place despite the entry of biosimilars.

WHAT HAS IMAGING TAUGHT US ABOUT OSTEOARTHRITIS? DEBATE: WHAT SUGGESTS THAT MRI SHOULD BE PART OF THE ROUTINE EARLY OSTEOARTHRITIS EXAM?

Johanne Martel-Pelletier

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Osteoarthritis, a leading cause of disability worldwide, is an extremely common illness that accounts for 40-60% of all degenerative diseases of the musculoskeletal system and is now acknowledged as an independent risk factor for increased mortality. Idiopathic osteoarthritis is difficult to define as its precise etiology is not known, its development is often insidious and, from the clinical standpoint, it represents a heterogeneous group of disorders with different phenotypes/subgroups having varying roots including different clinical and pathological manifestations. The heterogeneity of osteoarthritis suggests that phenotyping is needed to improve diagnosis and treatment and enable precision care. Early detection of osteoarthritis is limited using the present clinical guidelines, as identification of the disease occurs only after degeneration has progressed to a significant level. Recently developed technologies, such as magnetic resonance imaging (MRI), have the potential to better detect early signs of osteoarthritis that can uncover patients who have not yet progressed beyond the point where preventive measures may be effective. In turn, such methodologies could be employed in both diagnosis and prognosis. Hence, these technologies in clinical practice will enable, before radiographic diagnosis of osteoarthritis, identification of subgroups, which in turn will lead to more effective prognosis and treatment response. Osteoarthritis is now recognized as a disease involving changes in the whole joint, encompassing multiple tissue types including the cartilage, subchondral bone, synovium, meniscus, skeletal muscle, and bone shape/curvature, to name a few. During the presentation, I will show that it is now possible, using MRI, to not only visualize knee tissue structures and their early alterations, but that technologies/systems exist that enable the quantification of the joint tissue changes over time in the same individual. Such quantitative systems/technologies use semi-automated or fully automated assessment of all the above-mentioned knee tissues. Of importance for early diagnosis, data have revealed that alterations in some of the articular tissues could precede the degradation of the cartilage, the hallmark marker of osteoarthritis, and may be predictive of further knee damage. In conclusion, at present there are limitations in current clinical classification systems for early knee osteoarthritis. Recognizing early osteoarthritis changes needs to be applied in clinical settings and requires a more global approach through integrated diagnostic modalities and joint tissue alterations. The value of MRI to detect and quantify knee structural alterations is now established. Using these technologies, it is now possible to identify articular tissue alterations very early on, and their changes over time could be used as a prognosis of knee alterations.
Osteoarthritis (OA) is a highly heterogeneous disease with varying roots, thus the manifestations of knee OA and response to treatment vary. This heterogeneity of clinical presentation and treatment response confounds interpretation of therapeutic clinical trials and complicates the care decisions for clinicians. Current clinical diagnostic procedures do not adequately fulfill the need for the development of new effective disease modifying OA drugs (DMOADs), and the modest efficacy of some potential DMOAD treatments could result in inclusion of heterogeneous groups of OA patients in clinical trials. Identifying factors to define patient profiles most likely to benefit from treatment would help therapeutic decision-making and may enhance stratified randomization strategies that attempt to balance comparator groups to reduce confounding. In addition to such identification of patient subsets, another hurdle of DMOAD development is the reliability and sensitivity of the technology used to assess the effectiveness of a drug. It is well recognized that a major limitation of radiography is the weak sensitivity to change. In contrast, magnetic resonance imaging (MRI) can precisely and accurately assess and quantify joint structural changes. This heterogeneity of clinical presentation and treatment response confounds interpretation of therapeutic clinical trials and complicates the care decisions for clinicians. Current clinical diagnostic procedures do not adequately fulfill the need for the development of new effective disease modifying OA drugs (DMOADs), and the modest efficacy of some potential DMOAD treatments could result in inclusion of heterogeneous groups of OA patients in clinical trials. Identifying factors to define patient profiles most likely to benefit from treatment would help therapeutic decision-making and may enhance stratified randomization strategies that attempt to balance comparator groups to reduce confounding. In addition to such identification of patient subsets, another hurdle of DMOAD development is the reliability and sensitivity of the technology used to assess the effectiveness of a drug. It is well recognized that a major limitation of radiography is the weak sensitivity to change. In contrast, magnetic resonance imaging (MRI) can precisely and accurately assess and quantify joint structural changes. This heterogeneity of clinical presentation and treatment response confounds interpretation of therapeutic clinical trials and complicates the care decisions for clinicians. Current clinical diagnostic procedures do not adequately fulfill the need for the development of new effective disease modifying OA drugs (DMOADs), and the modest efficacy of some potential DMOAD treatments could result in inclusion of heterogeneous groups of OA patients in clinical trials. Identifying factors to define patient profiles most likely to benefit from treatment would help therapeutic decision-making and may enhance stratified randomization strategies that attempt to balance comparator groups to reduce confounding. In addition to such identification of patient subsets, another hurdle of DMOAD development is the reliability and sensitivity of the technology used to assess the effectiveness of a drug. It is well recognized that a major limitation of radiography is the weak sensitivity to change. In contrast, magnetic resonance imaging (MRI) can precisely and accurately assess and quantify joint structural changes.

**Osteoarthritis (OA), the most frequent musculoskeletal disease, represents a major challenge from a therapeutic point of view. There are many reasons to explain why such an issue exists with OA patients, including the fact that many patients are elderly, often suffering from a number of other medical conditions and polymedicated, and that the treatment will extend over a long period of time, often many years. Therefore, assessing the benefit/risk ratio of any treatment for these patients is of the utmost importance. The pharmacological treatment of OA symptoms should follow a stepwise approach, keeping in mind the objective of using an effective treatment with the best possible safety profile. Concern has been expressed about the use of NSAIDs and narcotics, mainly because of safety issues, particularly for chronic treatment. Treatment with good long term safety profiles, such as paracetamol or SYSADOAs, have gained popularity for use alone or in combination [1]. The SYSADOA class of drugs, which includes glucosamine and chondroitin sulfate alone or in combination, diacerein, and avocado soybean unsaponifiables, have been in use for a number of years. Moreover, recent high quality trials with pharmaceutical grade chondroitin sulfate and/or glucosamine have shown that these drugs can effectively relieve OA symptoms to a level similar to a coxib (celecoxib) [2-4], a finding also previously reported for diacerein [5]. Moreover, their safety profiles were generally found to be very good. In addition, data from some of the above trials and from observational studies, in which OA structural changes were studied using quantitative magnetic resonance imaging (qMRI), have shown a protective effect of chondroitin sulfate [2] and the combination of chondroitin sulfate and glucosamine [6] on the loss of cartilage over time, up to six years of follow-up, with a reduction in need for total knee replacement reported in one of the studies which was exploratory [7]. At this time, particularly in clinical research trials, evidence clearly points to the superiority and reliability of qMRI over X-rays at following disease progression and response to disease modifying treatment.

BIOMARKERS USEFULNESS IN OSTEOARTHRITIS: DEBATE: REALITY BASED ON CLINICAL TRIALS
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Osteoarthritis (OA) is a highly prevalent joint disease characterized by progressive structural changes including cartilage volume loss (CVL). It affects the majority of people, mainly in the second half of their lifespan, having a significant negative impact on quality of life. At present, most pharmacologic therapies are symptomatic. The pathophysiology of OA has been shown to be related to a number of abnormal metabolic pathways leading to structural changes, including CVL. These changes are driven in part by several catabolic factors such as proteases, cytokines and adipokines, to name a few. The investigation and development of new treatments that can, in addition to improving the clinical symptoms of OA and showing better safety profiles, also be able to decrease progression of structural changes, have been the focus of intense research. Over the years, a large number of studies have looked into identifying biochemical (soluble) and imaging markers with predictive value to assess the risk of OA progression, particularly in knee OA patients. Good progress has been made in making imaging (MRI) markers and a number of biochemical markers have been identified, predominantly among data from observational studies, yet none has qualified for clinical practice in the follow-up of knee OA patients. There is an obvious need to identify prognostic and outcome markers, but an even greater need to identify markers that could reliably predict patient response to potential disease-modifying OA drug treatments.

The OARSI-FDA Biomarkers Group has identified distinct biochemical biomarkers of bone and cartilage turnover that were included in the BIPEDS classification system, and a number of biomarkers were also identified as valid OA-related predictors of radiographic and persistent pain progression. Most studies assessing the validity of biomarkers in relation to OA structural changes have used X-ray, a technology with low sensitivity to assess changes. However, the use of qMRI, a sensitive and reliable imaging technology was found most useful for identifying the predictive value of biomarkers with regard to OA structural changes and disease outcome. A few clinical research trials have used a combination of these two technologies to identify biomarkers that would be of value in predicting drug treatment efficacy on structural changes and clinical outcomes such as total knee replacement. Such studies have explored biomarkers that could possibly identify patients with knee OA likely to benefit from such treatment. This information is useful in the context of personalized medicine, as targeting responders would reduce cost of treatment and, importantly, improve patient benefits. Serum biomarker levels were measured in knee OA patients included in Phase III and IV clinical trials. The rationale behind the selection of biomarkers was to use those that are representative of the most important pathways related to OA progression: inflammation (CRP, HA, leptin, and adipin), cartilage catabolism (MMP-1, MMP-3) and anabolism (PIINP), and bone remodeling (CTX-I). We reasoned that the biomarkers chosen for the study covered a broad range of the major pathological pathways of OA and were therefore likely to provide new information about biomarkers that could be associated with a treatment effect on CVL assessed by qMRI. Data will be presented demonstrating the usefulness of combining imaging and biomarkers to predict disease progression, outcome, and response to treatment.

MANAGEMENT OF COMORBIDIES IN INFLAMMATORY ARTHRITIS: IT IS THE RESPONSIBILITY OF THE FAMILY PHYSICIAN
Kevin Pile, Australia

“Play to your Strength” has been endorsed by Albert Einstein to J Lo, so it must be correct. Rheumatologists and musculoskeletal physicians should focus and prioritise their precious clinical interaction time doing what they do best – eliminating inflammation! Yes, co-morbidities are prevalent amongst the major inflammatory arthritides of rheumatoid arthritis, psoriatic arthritis, and gout – as Table 1 of clinical trials will attest. The Metabolic syndrome of obesity, diabetes, hypertension, and hypercholesterolaemia abounds within clinical trials and more often in your practice – but you should focus on the inflammatory arthritis. The learned societies representing General Practitioners and Family Physicians have cornered the market for guidelines and recommendations covering all facets and eventualities in managing comorbidities. Let’s face it, we barely have time enough to review our current caseload of diagnosing and effectively managing and monitoring our DMARDS and bDMARDS, and we are some of the luckier ones. China and India are the largest population hubs of the world, with the fewest rheumatologists! We need to focus on what we do best – eliminating inflammation! Inflammation is evil and its elimination by you, the rheumatologist, hits comorbid diseases out of the park to the minor leagues. Without inflammation your patient is happier, their SF36 improves, and their comfort eating reduces. Their joints hurt less, they are happier, and exercise more. Reversing their metabolic syndrome leads to weight loss, improved glycaemic control and disappearance of their diabetes. Hypertension resolves, and cholesterol is back to its target. The link is even clearer for gout. Rheumatologists are the best at hitting the uric acid target, and by doing so, we prevent the development of comorbidities. Let’s play to our strengths, and let our Family Physicians do what they do best. Battling and beating inflammatory arthritis is not for the faint-hearted and demands the best of the best – a rheumatologist. Once inflammation is eliminated, nothing else matters!

THE INTERNATIONAL TSUNAMI OF MUSCULOSKELETAL PAIN: WILL IT HIT AND WILL WE COPE?
Kevin Pile, Australia

Foreseeing a health challenge such as musculoskeletal pain implies we have predictors of disease development and/or of health resource utilisation that we can apply to a robust population dataset from many countries. Our ability as clinicians to cope depends on our communities preventative strategies, initial self-care and self-reliance, before expecting and accessing health care providers. As we effectively combat communicable diseases, chronic conditions especially musculoskeletal have become pre-eminent in terms of morbidity and societal cost via lost productivity and health care use.
The structure and distribution of global population increases are changing with India predicted to outsize China around 2022, with Nigeria becoming the third largest country overtaking USA around 2050. Globally the population of persons over the age of 60 will triple by 2050, a proportional rise from 11% to 22%. For some developing countries this will be their first experience of an elderly population who are no longer in the workforce. Within Europe 34% of the population is projected to be over 60 years by 2050, with a shrinking population base beneath. Musculoskeletal disease is estimated to contribute 7.5% of the disease burden amongst the elderly. As well as aging, the population is getting heavier, with one third of the USA over 60’s being obese. Despite increasing weight, age brings reduction in muscle mass and strength, reduction in bone mineral density and increased falls. The consequent morbidity from vertebral and hip fractures is well documented. Challenges abound for falls prevention strategies. Proinflammatory IL-6 and TNFα increase with age, and combines with the proinflammatory adipokines and increased biomechanical stress of obesity in the aetiology of symptomatic OA. 10-20% of adults over 60 have significant clinical problems attributable to OA, with hip and knee OA ranked as the 11th contributor to global disability. But it is not only the elderly ex-workforce. Whilst workforce practices especially workload contribute to musculoskeletal pain, regional differences between countries are not explained by identified hazards and risk factors. Psychosocial, social support, personal factors, and cultural health beliefs and expectations contribute significantly to the burden of musculoskeletal pain at the individual and societal level. Does this underpin the 15% prevalence of musculoskeletal complaints amongst Indian manual workers contrasting with 37% for UK office workers? Design and implementation of preventative and treatment strategies will need to take into account the work practices and culture of the population.

SERONEGATIVE RHEUMATOID ARTHRITIS: PROGNOSIS AND MANAGEMENT
Susanna M. Proudman, Australia

Seronegative rheumatoid arthritis (RA) is likely to be a more heterogeneous entity than its seropositive counterpart, where the disease course and risk factors are now better defined. It is considered a milder subtype, but risk factors, prognosis and the influence of seronegativity on choice of therapy have not been as systematically studied as for seropositive RA. Traditionally, the definition of seronegative RA has been based on the absence of IgM rheumatoid factor (RF) but this has evolved since 10% of these patients were found to be anti-citrullinated peptide antibody (ACPA) positive. As ACPA are associated with a more destructive disease course, excluding the seronegative subset defines a group of patients, accounting for approximately a quarter of RA patients, who potentially have an even milder disease course. A diagnosis of RA is less certain when the extra-articular manifestations of RA, unusual in seronegative disease, and RF and ACPA or other relevant biomarkers are absent as fewer seronegative patients meet classification criteria for RA. They are often older at disease onset so exclusion of other causes of later onset polyarthritis such as inflammatory osteoarthritis and polymyalgia rheumatica can pose a diagnostic challenge. Furthermore, RA patients with fibromyalgia have been reported to be more likely to be seronegative, although closer assessment of these patients for other causes of pain could lead to misclassification of pain as being due to fibromyalgia. Conversely, patient reported outcomes and disease activity scores influenced by co-existent fibromyalgia can hamper treatment decisions, especially in seronegative patients. Progressive erosive disease does occur in seronegative RA although erosions are fewer in number, smaller and slower to progress especially when compared with patients who are double positive for ACPA and RF, even with similar levels of inflammation. Loss of cartilage proteoglycan content measured by T1 dGEMRIC on MRI and generalised loss of bone density also occur more slowly. Anti-carbamylated protein antibodies (CAbs) are a more severe course in seronegative patients and may be a useful diagnostic marker. Whether seronegative RA is more or less responsive than seropositive RA to methotrexate or other conventional synthetic DMARDs is unconfirmed although the evidence for more intensive therapy with combination DMARDs and oral corticosteroids is stronger in seropositive RA. The efficacy of TNF inhibitors with respect to autoantibody status is also unclear although seronegative RA was less responsive to rituximab in a meta-analysis of four clinical trials and to abatacept in a large registry study. In the RETRO study, relapse was less likely in seronegative RA when DMARDs were weaned following a period of sustained remission. The impact of seronegative RA in terms of radiographic progression and patient outcomes should not be underestimated. Better definition of the genetic and environmental factors driving seronegative RA will be required if clinically useful biomarkers for diagnosis, outcome prediction and specific treatment strategies in seronegative RA are to become a reality.

TARGETED THERAPIES IN OSTEOARTHRITIS (II): THE USEFULNESS OF INTRA-ARTICULAR THERAPY IN KNEE OSTEOARTHRITIS: CAN WE IDENTIFY RESPONDERS TO INTRA-ARTICULAR THERAPY IN KNEE OSTEOARTHRITIS?
Jean-Pierre Raynauld
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Problem Statement: Osteoarthritis (OA) is a chronic condition characterized by a loss of joint cartilage and is a major cause of disability in Canada. The local intra-articular (IA) treatments, corticosteroids and hyaluronic acid (HA) derivatives, due to their excellent efficacy/safety profiles, should always be considered for localised OA pain management. Still the best available evidence does not undoubtedly demonstrate a consistent clinical benefit for all patients individually. This is possibly related to the disease heterogeneity. Therefore, identifying predictors of IA treatment response beforehand would be of tremendous benefit to clinicians.

Methods: Potential baseline variables predicting good therapeutic response to IA knee OA treatments were evaluated through a literature review and recent data obtained from the Osteoarthritis Initiative (OAI) database. IA corticosteroid injections were considered separately from HA therapy. Results: The OA literature is surprisingly scarce regarding predictors of IA knee or hip therapies regarding pain relief or functional improvement. Corticosteroid injections should logically be considered in the presence of local joint inflammation found either upon clinical examination, by joint aspiration, or by imaging. As for IAHA therapy, a recent nested case-controlled study derived from the OAI cohort had identified younger subjects, highest WOMAC pain scores at baseline and greater medial compartment cartilage volume as assessed by MRI to be good predictors of response. To a lesser extent, lower bone marrow lesion (BML) scores, also assessed by MRI, and greater radiographic joint space width (JSW) were also predictive of treatment response.

Conclusion: This review intended to propose new reliable predictive factors that can identify patients who could best benefit from corticosteroids and IAHA therapy. The cited predictive factors can easily be implemented in daily clinical practice and may be a useful guide for clinicians.

SYMPTOMATIC SLOW ACTING DRUGS (SYSADOAS) IN OSTEOARTHRITIS TREATMENT – THE CLASH BETWEEN DISBELIEF AND HARD DATA: THE GUIDELINES: WHO TO BELIEVE?
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Problem Statement: Osteoarthritis (OA) is a common painful condition. Symptomatic treatments for OA are widely used, yet the best available evidence does not undoubtedly demonstrate a consistent clinical benefit for all OA patients individually. This is especially true when assessing efficacy of the symptomatic slow-acting drugs for osteoarthritis (SYSADOAS) that include diacerein, glucosamine and chondroitin compounds. Many of these SYSADOAS are supplied as over-the-counter products where considerable variation in the manufacturing process exists which in turn makes overall efficacy appreciation difficult. Methods: SYSADOAS’ overall efficacy was evaluated through recent literature review and data
PRACTICAL APPROACH TO THE EXTRA-ARTICULAR MANIFESTATIONS OF RHEUMATOID ARTHRITIS: SJÖGREEN’S
Maureen Rischmueller, Australia

Secondary Sjögren’s syndrome occurs in up to 30% of patients with rheumatoid arthritis, with resultant negative impact on quality of life and health care costs. General principles of management include avoidance of exacerbating factors such as low-humidity air conditioned areas, windy locations, irritants such as dust and cigarette smoke, and medications with anti-cholinergic effects. Ophthalmalic examination is important to discern the integrity of epithelial surfaces, as well as to identify and treat causes other than lacrimal failure which may be contributing to dryness, such as evaporative loss from Meibomian gland dysfunction. The severity of ocular symptoms of dryness, irritation, burning, and foreign body sensation, does not always correlate with the severity of objective findings, and a severely dry eye may be asymptomatic. Treatment of dry eyes should be tailored to the individual, and includes a combination of environmental optimization, tear supplementation, tear retention, tear stimulation, lid care, anti-inflammatory, and biological tear substitutes. Dry mouth symptoms include sensitive oral mucosa, dry lips, tongue, inner cheeks and palate, increased dental caries, and an unpleasant taste. Patients may experience difficulties with eating, swallowing, and speech, as well as having an urge to frequently moisten their mouth. Management strategies for oral manifestations of Sjögren’s syndrome include optimal oral hygiene, topical fluorides, dietary modification, avoidance of drugs which may worsen sicca symptoms, frequent sips of water, local and systemic saline stimulation, oral gels, mouthwashes, and salivary substitutes, and treatment of oral candidiasis and angular cheilitis. Biologic therapies such as rituximab have been shown to have a modest effect on salivary function and tear flow, which has been anecdotally reported by patients.

TARGETED THERAPIES IN OSTEOARTHRITIS (II): THE USEFULNESS OF INTRA-ARTICULAR THERAPY IN KNEE OSTEOARTHRITIS
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OA will affect millions more people in the coming years. Prevention is still critical due to the ageing and increasing obese world population. OA pathology is being considered as a “joint failure”. Endotypes of disease (chondrogenic, ligamentogenenic, synoviogenic, osteogenic, enthogenic) and weight loss in obese people are both focusing as a part of right therapeutic decision. Phenotypic decision is that OA are ageing driven-, cartilage driven-, metabolic driven-, subchondral bone-driven, traumatic injury driven-phenotypes and synovitis driven-inflammatory phenotype, as well as when considering mono or multiple joint involvement because of different process playing different roles in each different type of OA. Then, the approach to therapy is very difficult because OA is a multi-factorial disease. The intra-articular therapy is the most direct way to reach the joint, but it has still controversial issues. Mostly recognized IA Therapy includes: Corticosteroids (IACs), Hyaluronic Acid (IAHA), Platelets Rich Plasma (PRP), Ozone therapy and others. Studying the highlights of Meta-analysis about the therapeutic trajectory of IAHA for knee OA pain over six months shows that IAHA is efficacious for 4 weeks, reaches its peak efficacy at 8 weeks and still exerts a detectable affect at 24 weeks. Meta-analysis confirms the efficacy of IAHA for knee OA pain and the obtained effect size is considered being clinically relevant in chronic pain conditions. At 60 days, IACs are more effective than IAHA, at 120 days, there are no differences in results but, at 8-26 weeks, IAHA seems more effective when treating OA. In general, HA improves pain by approximately 40-50% compared with baseline levels in knee OA. The following table Compares IAHA vs IACs.

Lubricin (Tribosupplementation) may be a viable future treatment option for genetic or acquired deficiency of lubricin. Ozone alone or in combination with HA as well as PRP plus HA are very common used therapies to-day. Plasma Rich Growth Factors (PRGF) alone or combined is not a “magic potion” and some patients are “Non-responders”. We need to understand better the physiopathology of OA, even the mechanism of action of the GFs when delivering into the joint. To affirm that PRP is better than other therapies we need to have more Level 1 studies to support this concept. Now, new insights in disease therapy (from OARSI 2017) show an interesting future when considering the differences in viscoelastic behavior between IA injections of hyaluronic acid formulations, corticosteroids agents in short and long-term efficacy, PAP (platelets autologous plasma), nanocarriers by IA administration that interacts with synovial fluid delivering to cartilage, cytosolic delivery of nanoparticles, MIA (monooiodoacetate). The discovery of a better chondrocyte phenotype stability actively maintained by matrix-bound factors, temporally degradable collagen-mimetic hydrogels, hyaluronic acid hydrogel functionalized with amphiphilic PEGilated Kartogenin, S2 HPMC/si-chitosan Hybrid hydrogel will be exploitable in OA. An emerging small molecule efficacy (SMO4690-OA-01) and new one potential like BM55309413 (in just one single Intra-articular injection) are coming soon. Probably new specific mrc blockers will be considered in cases of mitochondrial dysfunction, DMOADs targeting cartilage (stromelysin inhibitors, GF18 and stem cells products), microRNAs, engineered liposomes for enhancement of agent results and better effective lubrication by intra-articular administration, even in IA arthroscopy. Strontium scaffolds with interconnected pores and bioactive cell nanoneedle interface are all in the closest future. Final, as a rapid summary, we can conclude that Viscosupplementation efficacy is higher in younger patients with milder disease but similar when comparing single versus multi-week formulations. Another option is the combination of different
therapies e.g. HA plus PRP searching to increase analgesic and extending (or modify) duration of effects, reducing number of injections, improving anti-inflammatory power, to slow down structural progression, determining new strategies in partial responders, use of different compounds for different stages of OA that can delay the time to Total joint replacement. Our Hope is now to meet the target with synthetic and biological DMARD in the recommended order. On the other hand, we are facing to adjust the dose, intervals, other co-medications in individual patient. In this session, I will review the recent publications in dose and interval adjustment of DMARD and introduce our own experiences for the challenges toward precision medicine with realistic and innovative biomarkers.

DOSE ADJUSTMENTS IN INFLAMMATORY ARTHRITIS: RHEUMATOID ARTHRITIS
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The management of rheumatoid arthritis has been progressed recent decade by treat to target strategy, appropriate disease evaluation, and useful disease modifying anti-rheumatic drugs (DMARD). In the standard treatment algorithm according to ACR guidelines or EULAR recommendations, we need to control the disease activity aiming to the target with synthetic and biological DMARD in the recommended order. On the other hand, we are facing to adjust the dose, intervals, other co-medications in individual patient. In this session, I will review the recent publications in dose and interval adjustment of DMARD and introduce our own experiences for the challenges toward precision medicine with realistic and innovative biomarkers.

PRACTICAL APPROACH TO THE EXTRA-ARTICULAR MANIFESTATIONS OF RHEUMATOID ARTHRITIS: INTERSTITIAL LUNG DISEASE IN RHEUMATOID ARTHRITIS
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One of the important and severe co-morbidities in RA is interstitial lung disease (RA-ILD). The prevalence of RA-ILD in Japan is reported to be 5-10% by chest X-ray, but up to about 30% by chest high-resolution CT (HRCT). RA-ILD is associated with shorter survival than other connective tissue disease-ILD, and occasionally develops an acute exacerbation associated with poor prognosis. Given the known toxicities for lung by methotrexate, knowledge for the use of acute exacerbation associated with poor prognosis. Given the known toxicities for lung by methotrexate, knowledge for the use of acute exacerbation associated with poor prognosis.

PATIENT REPORTED OUTCOMES (PROs) WITH RHEUMATIC DISEASES: USING THE OPAL REGISTRY TO LINK PROs WITH CLINICAL OUTCOME
On behalf of OPAL Pty Ltd, 545 Pty Ltd and Prospection

Introduction and Aim: Patient reported outcomes (PROs) which include symptoms of pain and fatigue are important to but underreported by patients. If we are able to assess changes in longitudinal PRO reports using an electronic health record (EHR) linked with clinical outcome remission measures [DAS28 CRP, CDAI, SDAI, RAPID3] we can improve communication and quality of care.

Methods: We utilised the Optimising Patient Outcome in Australian rheumatology (OPAL) database implementing a new electronic questionnaire delivery system to obtain PRO information from rheumatology patients in between and at patient-physician consultation. The software enables an email to be delivered to the patient who then fills out the validated PRO questionnaire on smartphone, i-Pad or desktop. The completed results are returned to the physician with data encrypted via QR code reader or secure server and automatically incorporated into the patient’s EHR. PRO’s studied the FACIT-Fatigue, Health Care Resource Utilisation, Patient health and mood and RAPID3 components. Results: PRO completion rate was >90% via i-Pad and >70% via email. PRO completion rate improved over time and via InPractice i-Pad was not different between patient gender. There was variable spread over different age groups. PRO data across key disease areas including rheumatoid arthritis (RA), psoriatic arthritis and ankylosing spondylitis was proportionate to the number of patients with these diseases. In RA, we were able to link these PROs with clinical outcome remission measures. Conclusion: We can now link longitudinal PROs with clinical outcome measures using this new electronic automated delivery system in between and available at the time of patient-physician consultation.

MESENCHYMYAL STEM CELLS IN THE TREATMENT OF OSTEARTHRITIS
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Osteoarthritis (OA) is one of the leading causes of disability globally, resulting in substantial socioeconomic burden and healthcare cost. There is an unmet need for effective disease modifying OA agent to improve the quality of life for OA patients and reduce the burden of this chronic disabling condition. Mesenchymal stem cells (MSCs) were first characterised by Dr Friedenstein in over 40 years ago. MSCs are multipotent cells capable of differentiating into bone, cartilage, adipose, tendon and other cells of the mesenchymal lineage. The cells can be readily isolated from bone marrow, adipose tissue, muscle, or synovium and culture expanded without undergoing differentiation. Moreover, MSCs exhibit anti-inflammatory and immunomodulatory activities. MSCs have been examined for their therapeutic potential for the treatment of OA and other arthropathies in the last decade. Animal studies have shown that MSCs do not engraft into cartilage defects and directly affect cartilage repair after intra-articular injection. There is evidence that MSCs have chondroprotective effect and retard the progression of cartilage destruction by reducing inflammation in animal studies. MSCs can engraft into cartilage defects and show greater effect on cartilage repair when the cells are combined with pro-chondrogenic molecules or incorporated into support structures. Human studies, in particular randomised controlled trials in the past 5 years examining the knee joint, have shown positive outcomes in terms of safety, improvement in joint pain and function, and modulation of joint tissue breakdown. There was consistent evidence that MSC treatment improved knee structural outcomes, particularly cartilage morphology, irrespective of the quality of the trials. There are limitations in these trials, such as the small to moderate sample size which particularly limited the power of the trials to detect the effect of MSCs on structural outcomes, methodological issues in terms of different kinds of bias, and short- to medium-term of follow-up (maximum 2 years). No clinical trials have examined the effect of MSCs on delaying joint replacement surgery. The underlying mechanisms by which MSCs affect the progression of OA have not been fully understood. High quality randomised controlled trials which are adequately powered, with longer period of follow-up, and examine multiple joint structures, are needed to provide high quality evidence whether MSCs may provide a potential disease modifying agent for OA, before the clinical application of the direct intra-articular injection of MSCs can be advocated for the treatment of OA.

UNDERSTANDING OSTEOARTHRITIS: FOCUS ON THE PATIENT PATIENTS’ PERCEIVED NEEDS IN THE MANAGEMENT OF OSTEOARTHRITIS
Anita Wluka, Australia

Osteoarthritis, the most common form of arthritis affecting 1 in 10 adults, has significant social and economic impact. Current management is limited to pain control, functional maintenance and joint replacement surgery when indicated by symptoms. The foundations of therapy are education, weight management and exercise. These are incorporated in the numerous current guidelines for managing osteoarthritis. Successful implementation requires health care delivery within the existing health system and is dependent on active patient participation and engagement. Better understanding the patient’s perspective will help focus treatment...
and health service provision. Many factors need to be considered, as shown in our recent report, reviewing patients’ perceived needs. An understanding of the patient’s osteoarthritis knowledge is essential. This varies widely with 30% of people with physician diagnosed arthritis being unaware of the type of arthritis they have. The other critical concept is to acknowledge the patients’ main health care priorities, pain control and functional maintenance, with view to maintaining independence. Once these are established, patients’ health information needs need to be addressed. Patients want information regarding osteoarthritis, its prognosis and the various management options. Care in delivery by providers, relating to aspect, language and empathy may colour the information provided, affecting patient satisfaction and subsequent engagement in therapy. Providers need to be aware of sources of patient information, and their potential biases so that these can be addressed appropriately. We need to consider patient’s needs about obesity, given the central role of obesity in the management of osteoarthritis. For example, patients are aware that obesity is detrimental to their health. They realise that weight loss is important and often believe that both diet and exercise are essential for this. As exercise may induce pain, they may avoid it, and cease weight loss attempts, in the erroneous belief that exercise is essential. Addressing erroneous beliefs regarding weight management and exercise may facilitate better outcomes. Health care utilisation is also driven by their beliefs, perceptions and expectation regarding osteoarthritis. Patients report that their symptom control drives health care use, but this may be modified by health literacy, their own/others’ experience, social expectations, social roles and access to health care. Engagement in lifestyle programs may be influenced by patients’ relationships with the individual providers, preferences related to health care providers, beliefs about allied health, interventions, surgery and the use of aids. Addressing erroneous beliefs may reduce the use of unnecessary, potentially harmful interventions such as arthroscopy. Patients’ needs related to osteoarthritis extend beyond the affected joint. Patients identify needs related to independence in activities of daily living, social function, financial security, occupation, leisure and transportation. The impact of these concerns on quality of life is significant, underscoring the necessity of improving the management of osteoarthritis. Better awareness and understanding of the patients’ perspective will help health care providers align the management of osteoarthritis to the needs of patients. This will enhance patient engagement and achieve improved outcomes for the patient and health care system.

**CAN PATIENTS WITH ANCA ASSOCIATED VASCULITIS BE TREATED WITH COMPLEMENT BLOCKADE?**

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The histopathological hallmark in the kidney of patients with ANCA-associated vasculitis (AAV) is “pauci-immune” necrotizing crescentic glomerulonephritis, characterized by little or no glomerular staining for immunoglobulins and complements in renal histology by immunofluorescence microscopy examination. Therefore, it was previously assumed that the complement system is not involved in the pathogenesis of AAV. However, increasing evidence suggests that activation of the complement system, via the alternative pathway, might play a role in the development of AAV. In a mouse model of AAV, complement depletion, C5−/− or B−/− mice were completely protected from the disease. In human studies, we found that the complement C3d, Bb and C5b-9 were stained on vasculitic lesions in affected glomeruli; our further studies identified that the levels of Bb, which is the unique factor in the alternative complement pathway, in circulation, urine and renal histology, were closed associated with the disease activity of AAV. These data suggest that complement activation via the alternative pathway is critical in the pathogenesis of AAV. In the complement system, the interaction between C5a and C5a receptors (C5aR) is one of the major effector mechanisms in complement-mediated inflammation. The interaction between C5a and C5aR on neutrophils composes an amplification loop and thus, plays a central role in the pathogenesis of AAV. In human studies, circulating level of C5a in active AAV was significantly higher, compared with AAV in remission, and even in active lupus nephritis. In vitro studies indicated that C5a could dose-dependently prime neutrophils for ANCA-induced respiratory burst and degranulation, the generation of C5a could also lead to infiltration and degranulation of more neutrophils at sites of complement activation which result in development of inflammation. Targeting the complement system at different levels is emerging as a novel treatment strategy for complement-mediated diseases including AAV. Eculizumab, a humanized recombinant monoclonal antibody against C5, could blocks C5 cleavage and prevents the formation of C5a and C5b-9. Others, like C1-inhibitor, soluble CR1 and a humanized monoclonal antibody against C3 have also been tried in various complement-mediated kidney diseases, but no reports yet have been published regarding patients with AAV. Recently, blocking of C5aR has been regarded as a novel therapeutic target for the treatment of patients with AAV. The CLEAR study, a multicenter phase II randomized double-blinded placebo-controlled trial led by EUVAS, evaluating the efficacy and safety of CCX168 (avacopan), a small molecule inhibitor of C5aR, was just released, this study showed that CCX168 could replace corticosteroids treatment with a more rapid effect and lower adverse effects. A parallel phase II study of CCX168 on AAV conducted in North America, CLASSIC, showed similar results. In conclusion, activation of the complement system via the alternative pathway plays a central part in the development of AAV. Blocking complement activation, especially inhibition of C5aR might be a promising therapeutic option for patients with AAV.
TELE-RHEUMATOLOGY IN SOUTH EAST QUEENSLAND: EVALUATING A NEW MODEL OF CARE AND INVESTIGATION OF PATIENT PERSPECTIVES

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Problem Statement: To assess the outcomes of a newly commenced tele-rheumatology service in South East Queensland (SEQ), Australia and to further analyse patient perspectives and acceptability of the use of telemedicine for the management of inflammatory arthritis and other rheumatological conditions.

Methods: A new tele-rheumatology clinic with a defined protocol commenced from Princess Alexandra Hospital (PAH), Brisbane, Australia in January 2016 to five hub sites across SEQ. The model of care includes a trained nurse at each hub site and consultant rheumatologist linked from PAH. The nurse at the hub site undertakes a joint count and administers a PRO (Rapid-3) prior to the patient being reviewed by the rheumatologist. Participants are stable review patients as triaged by the rheumatologist at PAH. Quantitative and qualitative studies are currently being undertaken including patient questionnaire and semi-structured interviews via tele-health to specifically examine patient acceptability and perspectives regarding tele-rheumatology.

Results: A total of 79 patients (162 appointments) were seen via tele-rheumatology in from January to December 2016. 53 (67%) of patients were female and mean age was 56. The most common primary diagnoses were rheumatoid arthritis (n=34, 43%), psoriatic arthritis (n=9, 11%) and seronegative inflammatory arthritis (n=8, 10%). PMR, MCTD, myositis, SLE and OA were seen at a rate of 4% each (n=3), whilst peripheral spondyloarthritides, gout, GCA, MPA, Fibromyalgia, Sjogrens, and Scleroderma comprised less than 3% of visits (n=2). 5/162 (3%) failed to attend appointments. Initial patient surveys (n=14) demonstrate patient travel distance is reduced on average by 91km per patient using the telehealth service. 100% of patients report saving time and money, and 20% avoided taking time off work. Telehealth is acceptable to patients with 100% having no difficulty hearing or seeing the rheumatologist during the consult and all felt they could talk to the rheumatologist in a similar way to a face-to-face meeting. 100% felt they could talk openly with the rheumatologist even about sensitive issues and all were comfortable with the nurse preparing them for the appointment and doing the joint count and 79% liked having the nurse present during the telehealth review. 100% said they could easily complete the PRO (Rapid 3). 29% felt they still needed an examination by a rheumatologist and 29% agreed or strongly agreed they felt a face-to-face appointment would provide a better rapport with a rheumatologist. 13 of 14 patients felt confident with their medications and all indicated that they understood their treatment plan and were overall satisfied with their telehealth appointment. Conclusion: It has been established internationally that tele-health models can achieve excellent patient satisfaction rates amongst patients separated by distance. A new model of care for tele-rheumatology in SEQ has demonstrated acceptable patient numbers, diversity of diseases managed and low non-attendance. Preliminary data regarding patient acceptability demonstrates high level of patient satisfaction however further data collection is crucial to allow for appropriate implementation and sustainability of tele-rheumatology.

Disclosure of Interest: S. Devadula Grant/ Research Support from: Arthritis Queensland, P. Vecchio: None declared, H. Benham: None declared

REAL WORLD CONSIDERATIONS FOR THE USE OF BIOSIMILARS IN RHEUMATOLOGY: WHAT DO AUSTRALIAN PHYSICIANS THINK?

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Problem Statement: Biologic medicines have revolutionized the treatment of rheumatology. As patents for these medicines expire, similar versions of these medicines, known as biosimilars, are beginning to enter the marketplace. Given that these medicines are similar, but not identical to the original medicine they are based on, what are some of the considerations for their use in clinical practice?

Methods: To understand how Australian rheumatologists feel about the use of biosimilars, the Alliance for Safe Biologic Medicines (ASBM) conducted web-based surveys among 160 Australian physicians who prescribed biologic medicines. Results: Respondents practiced in one of the following settings: public hospital (46%), private hospital or clinic (46%), or academic medical center (11%); a majority (94%) had at least 6 years in clinical practice. Most physicians surveyed were Familiar or Very Familiar with biosimilars (94%). A majority (90%) thought it was Critical or Very Important that the prescriber and patient jointly hold the ultimate decision for the medicines they receive-either original biologic or biosimilar. In the event of a substitution to the biosimilar at the pharmacy, 89% thought it was Critical or Very important that they be notified. Highlighting the importance of distinguishable names for biologic and biosimilar medicines, our survey indicated that most physicians believed using the same non-proprietary scientific name for two distinct medicines could lead to the belief that the two medicines were structurally identical (52%), or that both medicines were approved for the same indications (80%), which may or may not be the case. A majority of respondents (76%) believed it was important for TGA to require distinguishable non-proprietary names for biologics and biosimilars, with 38% preferring a distinguishable prefix, 29% preferring a distinguishable suffix, and 30% preferring an entirely different non-proprietary name for the biosimilar and the reference product. Conclusion: Regulatory bodies around the world have acknowledged the need to be able to accurately trace what biologic medicine a patient receives. This can be achieved through the use of distinguishable non-proprietary names, and notification of any substitutions that occur once a medicine has been prescribed. Our survey indicated that both of these are important to Australian physicians. These data were shared for the first time in mid-February in a series of meetings with Australian Department of Health, the TGA, and senior Health officials in Parliament, to highlight challenges, which if properly addressed, can help increase biosimilar utilization in Australia.

Disclosure of Interest: M. Reilly Grant/ Research Support from: ASBM receives funding from manufacturers of biologic and biosimilar medicines, H. Gewanter Grant/ Research Support from: ASBM receives funding from manufacturers of biologic and biosimilar medicines
Problem Statement: Diflunisal (DIF) is a non-steroidal anti-inflammatory drug with high potency and longer duration of action. It is used orally for the management of rheumatoid arthritis (RA), osteoarthritis etc. Oral administration leads to severe gastrointestinal side effects like bleeding and ulceration. Topical application would be efficacious in reaching the target site with avoidance of systemic side effects. The oleo-resinous part of Boswellia serrata, family Burseraceae contains β-boswellic acid, acetyl-β-boswellic acid, 11-keto-β-boswellic acid and acetyl-11-keto-β-boswellic acid (AKBA), responsible for inhibition of pro-inflammatory enzymes. AKBA is the most potent inhibitor of 5-lipoxygenase and efficacious in treatment of pain in osteoarthritis and rheumatoid arthritis (RA). The problem of AKBA is poor aqueous solubility leading to reduced bioavailability. Hence, stoichiometric complex between AKBA and phospholipid 90 G (PL 90G) was made. To achieve the synergistic efficacy of AKBA and DIF, co-delivery of both was proposed to develop liposomes. The aim was to develop liposomes of diflunisal (DIF) based on AKBA-PL 90G complexes for topical applications in treatment of symptomatic pain associated with arthritic conditions. Methods: The stoichiometric complex was formed by solvent evaporation method. The complex was characterized by PXRD, SEM and molecular modeling-docking studies. Liposomes were prepared by thin film hydration method. Therapeutic efficacy was evaluated using mice ear edema, mice air pouch model and Complete Freund’s Adjuvant (CFA) induced RA model in Wistar rats. Results: The morphology of liposomes was spherical as depicted by Transmission electron microscopy (TEM), Field Emission Scanning Electron Microscopy (FESEM) with average particle size of 129 nm; PDI 0.277. The entrapment efficiency was 78.45%. The cumulative amount permeated per unit area of skin from liposomal dispersion was 109.34μg/cm². The skin penetration of liposomes was demonstrated by Confocal Laser Scanning Microscopic (CLSM) study. The air pouch model for arthritis depicted a significant reduction in infiltration of leukocytes (4500±234 leukocytes/mm²) with application of DIF AKBA-PL90 G complex based formulations as compared to positive control (123456±578 leukocytes/mm²). The arthritis index was reduced drastically in CFA induced RA models as measured by paw thickness (66%; p<0.001). Also, the levels of TNF-α (120.34 pg/mL) were reduced from CFA positive control (450.23pg/mL) in synovial fluid. The histopathological investigations of paw skin and ankle joint sections of CFA positive control exhibited inflammatory cell infiltration, synovial hyperplasia, and bone destruction. However, these above changes were drastically improved after treatment with the developed formulations to prove the better therapeutic efficacy. This improved efficacy may be ascribed to the synergistic activity of DIF in inhibiting the Prostaglandin synthesis and inhibition of 5-lipoxygenase enzyme by AKBA to strongly inhibit the arachidonic acid inflammatory cascade involved in arthritic conditions.

Image: Figure depicts CFA induced RA inflammation in rat paw. The bar graph depicts the levels of TNF-α in various groups treated with formulations.

Conclusion: The developed topical formulations of DIF loaded AKBA-PL 90 G complex based liposomal formulations were promising in treatment of local inflammation and pain associated with arthritic conditions along with absence of associated systemic toxicity.

Disclosure of Interest: None declared.

OR04 EXAMINING THE CLINICAL CORRELATES OF SUBCHONDRAL BONE MARROW LESIONS DETECTED ON TWO MRI SEQUENCES.

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Problem Statement: Fluid-sensitive MRIs are preferred in scoring subchondral bone marrow lesions (BMLs) compared to gradient recalled echo (GRE)-type MRI sequences. However, whether one sequence correlates better with clinical osteoarthritis (OA) outcomes than the other is unknown. We aim to determine the association of BMLs present on two different MRI sequences and baseline Western Ontario and McMaster Universities Osteoarthritis Index (WOMAC) scales, change in WOMAC scales, cartilage defect progression, and cartilage volume loss in older adults over 2.7 years. Methods: 394 community-dwelling adults aged 50-80 years were assessed at baseline and 2.7 years. BML presence at baseline was scored on T1-weighted fat-suppressed 3D gradient-recalled acquisition and T2-weighted fat-suppressed 2D fast spin-echo MRI sequences, at the medial and lateral tibial and femoral, and superior and inferior patellar sites. Knee pain, physical function limitation, and stiffness were assessed using WOMAC. Cartilage volume and defect scores were assessed using validated methods. Ordinal logistic, linear, log binomial, and mixed effect model regression were used to describe the association between baseline BML presence with baseline WOMAC, change in WOMAC, cartilage defect progression, and cartilage volume loss adjusting for confounders. Results: BMLs were commonly present on both MRI sequences (86%). BMLs present on T2- and T1-weighted sequences were associated with increased odds of a higher category of knee pain and physical function limitation (OR=1.45 – 1.70; all P<0.05) but not stiffness. Longitudinally, BMLs present on T2- and T1-weighted sequences were associated with worsening
knee pain (b=1.04 & 1.31, respectively; P<0.05) and worsening stiffness (b=0.46 & 0.47, respectively; all P<0.05) but not worsening physical function limitation. Site specific BMLs present on T2- and T1-weighted sequences predicted cartilage defect progression (RR=1.30 – 5.26; all P<0.05). Lateral tibiofemoral BMLs present on T2- and T1-weighted sequences predicted lateral tibiofemoral cartilage volume loss (b=41.95 & -37.92, respectively; P<0.05). Conclusion: Subchondral bone marrow lesions were commonly detected on both T1- and T2-weighted MRI sequences. They were associated with clinical outcomes including symptoms, cartilage damage and loss, suggesting that either MRI sequence could be used separately to measure BMLs.

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OR05
THE COURSE OF BACK PAIN IN MIDDLE-AGED WOMEN OVER NINE YEARS: DATA FROM THE AUSTRALIAN LONGITUDINAL STUDY ON WOMEN’S HEALTH
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Problem Statement: Back pain is the leading cause of disability worldwide. With no effective therapies and rising financial burden, identifying modifiable risk factors remains a key priority. Our aim was to determine the course of back pain in middle-aged women over a nine-year period, and assess whether obesity and physical inactivity are associated with more frequent back pain.

Methods: This cohort of community based, middle-aged, women were part of The Australian Longitudinal Study of Women’s Health. Women born between 1946 and 1951 were randomly selected from the national health insurance scheme database. They completed questionnaires every three years between 2004 and 2013. 10,530 completed the survey in 2004 (mean age 55.5 years), 9,020 completed follow-up nine years later. 7,562 (72%) women provided back pain data in all four surveys. Data on back pain in the last 12 months, weight, physical activity, depression, and other socio-demographic factors were collected in every survey. Results: Back pain was common, affecting 80.3% in at least one survey. Of those with back pain at baseline, 92% reported recurrence. The prevalence of persistent back pain (present at all four surveys) was 28.9%. Those with persistent back pain were less likely to be working and had poorer physical and mental health at baseline, than those without back pain. Higher weight and obesity at baseline was significantly associated with frequent back pain (defined as back pain in three or four surveys) over nine years (RR 1.04, 95% CI 1.03 – 1.04, p<0.001 and RR 1.21, 95% CI 1.14 – 1.27, p<0.001, respectively), as was self-reported depression (RR 1.28, 95% CI 1.20 – 1.36, p<0.001) and lack of any vigorous physical activity (RR 1.21, 95% CI 1.13 – 1.30, p<0.001), all independent of confounders. In total, 23% of the risk of frequent back pain over nine years could be attributed to a lack of vigorous physical activity (14.2%), obesity (5.1%), and self-reported depression (3.5%) at baseline. Conclusion: Our study suggests that a significant proportion of back pain in middle-aged women could be prevented by increasing physical activity, targeting depression and avoiding obesity.

Disclosure of Interest: None declared
POSTER ABSTRACTS

P01 MODULATION OF PAIN, MUSCLE ENERGY METABOLISM AND MUSCLE MASS IN A COLLAGEN INDUCED ARTHRITIS MODEL IN THE RAT

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Problem Statement: Pain, muscle insulin resistance and atrophy are traits of inflammatory states, including Rheumatoid Arthritis (RA), which negatively impact on health and the quality of life. Yet, the metabolic and molecular mechanisms underlying these traits remain largely unknown. The collagen induced arthritis (CIA) model mimics the systemic inflammatory symptoms of RA and results in the development of pain. The aim of this study was to quantify pain behaviour, inflammatory status and changes in muscle intermediary metabolism, mass and targeted gene expression in a rodent CIA model.

Methods: Female adult Lewis rats (170-200g) were injected with 400 µg/200 µl of bovine type II collagen with complete Freund’s adjuvant (CFA) emulsion or 200 µl of CFA. Pain behaviour, locomotor activity and paw swelling were quantified in CIA (n=9) and control CFA (n=9) treated animals. Fourteen to 18 days following collagen administration, plasma, the extensor digitorium longus (EDL) muscle and hindlimb ankles were collected under terminal anaesthesia. Muscle metabolites, protein:DNA ratio and expression of mRNAs involved in muscle metabolism were measured.

Results: Compared to Control, CIA animals had greater paw thickness and lower hindpaw mechanical withdrawal thresholds. Furthermore, vertical and horizontal activity of CIA rats was lower than the control group of the study (Table 1). Plasma IL-6 concentration, but not IL-10 and TNF-α, was greater in CIA vs Control (Table 1), whilst muscle glycogen and the protein:DNA ratio were lower, and muscle lactate greater. In vivo and metabolic differences depicted in Table 1 as a result of CIA were associated to plasma IL-6, which is accompanied by deregulation of muscle metabolism and loss of protein mass compared with Control.

Table:

<table>
<thead>
<tr>
<th>Control (CFA)</th>
<th>CIA (w/o adhesive)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Pain withdrawal thresholds (g)</td>
<td>14.1 (2.1)</td>
</tr>
<tr>
<td>Horizontal activity (beam-breaks)</td>
<td>387.7 (41.6)</td>
</tr>
<tr>
<td>Rearing (beam-breaks)</td>
<td>51.4 (11.1)</td>
</tr>
<tr>
<td>Plasma insulin (µg/l)</td>
<td>0.1 (0.02)</td>
</tr>
<tr>
<td>Plasma glucose (mg/dl)</td>
<td>7.5 (1.2)</td>
</tr>
<tr>
<td>Muscle lactate (mM)</td>
<td>71.7 (8.8)</td>
</tr>
<tr>
<td>Muscle glycogen (g/kg)</td>
<td>103.2 (11.3)</td>
</tr>
</tbody>
</table>

Table 1: Values represent mean ± SD day 12 post-administration. Control group is a mean of both limbs in each rat. Control CIA determined by Student’s t or Mann-Whitney test depending on distribution determined by skewness from p<0.001, **p<0.01, ***p<0.001, ****p<0.0001. w/o adhesive, muscle:µRNA=aline protein mass.

Conclusion: Rats treated with CIA develop pain and systemic inflammation (plasma IL-6), which is accompanied by deregulation of muscle metabolism and loss of protein mass compared with Control.

Disclosure of Interest: None declared.

P02 EXPERIENCE WITH TOFACITINIB AT THE INSTITUT DE RHUMATOLOGIE DE MONTRÉAL AND THE CENTRE D’OSTÉOPOROSE ET DE RHUMATOLOGIE DE QUÉBEC

AN ANALYSIS FROM THE RHUMADATA® CLINICAL DATABASE AND REGISTRY

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Problem Statement: Tofacitinib, a new targeted synthetic DMARDS has recently appeared on the Canadian market. It is an oral agent, targeting two subunits of the Janus Kinase pathway, more precisely JAK 1 and JAK 3 indicated in the treatment of rheumatoid arthritis. We describe here the experience that we have accumulated in the last two years on 51 patients.

Methods: All patients exposed to tofacitinib at the Institut de Recherche en Rhumatologie de Montréal and the Centre d’Ostéoporose et de Rhumatologie de Québec either in monotherapy or combination with other csDMARDS was extracted from the database since its approval in Canada. All patients’ data was obtained from the Rhumadata® clinical database and registry. Descriptive statistics include age, gender, diagnosis, previous and actual exposure to other CS DMARDS and biologic agent, CDAI at the initiation of tofacitinib, duration of treatment, response to treatment, and the reason for stopping.

Results: Of the 51 patients exposed to tofacitinib since its launch, 95% had a diagnosis of rheumatoid arthritis (RA), and 5% had spondyloarthropathies (SpA). The patients were mostly female (84%), and the mean age and disease duration at treatment initiation were respectively 58.6 (11.0) and 12.4 (11.9) years. For RA patients, 72% were rheumatoid factor positive and 47% ACPA positive. At the time of the analysis, 59% were still on treatment. Reasons for stopping are inefficacy (48%), adverse events (19%), infection (5%) and other/unknown (24%). Of these patients, 31% had previously been treated with csDMARDS only. Prior biologic agent exposure ranges from 1 to 9 and 71% had been exposed to less than five biologic agents. The 6, 12 and 18 months’ retention rates of RA patients treated with tofacitinib were respectively 64.5% (SE=35.5), 58.7 (41.3) and 52.3 (47.7). Baseline CDAI for this subpopulation is 26.7 (SD=9.2) and improvement from baseline is on average 7.0 (SD=8.7). Percentage of patients with RA having reached remission is 9.5 %, low disease activity score compared to baseline.

Disclose of Interest: None declared.

P03 INJECTION SITE REACTION (PAIN) ASSOCIATED WITH SUBCUTANEOUS (SC) BIOLOGIC AGENTS AND METHOTREXATE.

AN ANALYSIS FROM THE RHUMADATA® CLINICAL DATABASE AND REGISTRY

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Problem Statement: ISRs are associated with the SC route of administration of all biologic agents, and 3% to 15% of patients reports it. ISRs include pain, itching, redness, swelling or a combination of any of these. Rhumadata® has collected the intensity of pain associated with SC injection. We report here the results and compare levels of pain across agents. Methods: As part of the PRO’s, one question on pain intensity was asked to patients exposed to SC methotrexate or a biologic agent administered with a device or a syringe. The same question was asked at all visits making multiple answers available for the same patient. The intensity of pain was described using the following scale: 1- none, 2- negligible, 3- mild, 4- moderate, 5- severe, 6- extremely severe and 7-
intolerable. Data comparing adalimumab (ADA), etanercept (ETA), certolizumab (CZP), golimumab (GOL) and methotrexate (MTX) is presented. Results: A total of 7128 injection pain assessment were extracted. 4116, 1117 and 1895 were performed on patients with rheumatoid arthritis (RA), ankylosing spondylitis (AS) and psoriatic arthritis (PsA) respectively. Women represented 75%, 39% and 47% of these cohorts. Mean ages at treatment initiation were 51.2(SD=12.1), 41.4(11.5) and 48.6(10.8). Severe, very severe or intolerable pain was reported among 3.26% of the RA, 10.47% of the AS and 7.60% of the PsA. RA (OR=0.407, 95% CI=[0.261, 0.635]) patients were less likely to report severe, very severe or intolerable pain than AS patients as were older patients (Age at treatment initiation OR=0.975, 95% CI=[0.961, 0.989]). Subjects treated with ADA (OR=5.70, 95% CI=[3.31, 9.799]), ETA (OR=3.396, 95% CI=[1.843, 6.255]) were more likely to report more pain than patients using MTX. Patients using ADA reported more severe, very severe and intolerable pain than ETA (OR=1.678, 95% CI=[1.018, 2.767]), CZP (OR=0.269, 95% CI=[0.107, 0.633]), GOL (OR=1.117, 95% CI=[1.323, 1.4181]). Stopping for an IRP-pain is extremely rare. Conclusion: The intensity of pain associated with subcutaneous route of administration varies with age, diagnosis and administered medication.

Disclosure of Interest: None declared

P04 MUSCULOSKELETAL INVOLVEMENTS IN SYSTEMIC LUPUS ERYTHEMATOSUS
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Problem Statement: Musculoskeletal involvement are common manifestations of systemic lupus erythematosus (SLE) and some patients have co-existence of Rheumatoid Arthritis (RA) and SLE, termed Rhupus. There may be differences in musculoskeletal involvement in early- or late-onset (50 years and above) lupus. Methods: A prospective lupus database was analysed to determine the prevalence of musculoskeletal manifestations in early and late-onset lupus. Erosive arthritis and avascular necrosis were confirmed by radiological modalities. Rheumatoid factor titers of more than 10 IU/ml were considered positive. Rhupus patients fulfilled the criteria for diagnoses of rheumatoid arthritis and SLE. Myositis were confirmed by elevated creatine kinase and electromyogram. Results: The cohort comprises of 5 males and 92 females, with an average disease duration of 78 months (range: 1 to 275 months). Non-erosive arthritis were commoner in the early-onset lupus patients while erosive arthritis were commoner in late-onset lupus patients. Five (6.1%) early-onset lupus patients had avascular necrosis (AVN) while none was detected in late-onset lupus patients. Two of the AVN patients had positive antiphospholipid antibodies (APA), one had lupus anticoagulants detected and the other had false positive VDRL test, while the remaining 3 have no APA detected. The following musculoskeletal features were present in these 2 subsets - Early-onset Lupus (81 patients) vs Late-onset Lupus (16 patients): Disease duration - 81 months (Range: 1 – 275) vs 62 months (Range: 7 – 130); Non-erosive arthritis - 84% vs 75%; Erosive arthritis - 1.2% vs 6.2%; Rheumatoid factor positivity - 36% vs 31%; Rhupus (RA + SLE) - 13.5% vs 18.7%; Avascular necrosis - 6.1% vs 0%; Myositis - 2.4% vs 3.8%; Muscle atrophy - 1.2% vs 0%. Conclusion: Overall there is no statistically significant differences between the musculoskeletal manifestations of early or late-onset lupus disease. 14% of the combined cohorts had concomitant rheumatoid arthritis and lupus disease. Avascular necrosis complication noted in early-onset lupus patients is likely a reflection of more severe disease that requires higher corticosteroid dosages.

Disclosure of Interest: None declared

P05 INFLUENCE OF AFFECTED OTHER JOINTS IN LOWER LIMBS ASSOCIATED WITH OUTCOMES OF TOTAL HIP ARTHROPLASTY IN RHEUMATOID ARTHRITIS
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Problem Statement: Outcomes of total hip arthroplasty (THA) for rheumatoid arthritis (RA) is reported to be comparable with osteoarthritis (OA) patients in terms of fixation of implants. However, symptoms are often observed in multiple joints in cases of RA, unlike OA. It is assumed that postoperative function of the lower limbs is affected by other joints in RA. In this study, RA patients who had undergone THA were retrospectively surveyed to examine the association of the pre- and postoperative function of the hip joint with disease activity of RA and affected joints in the lower limbs. Methods: Out of patients who underwent THA for RA, this study included 42 patients with 45 hip joints. The subjects were all female. The mean age at the time of surgery was 67.2 years. The preoperative mean values of the 28-joint disease activity score using C-reactive protein (DAS28-CRP) and the modified Harris Hip score (mHHS) for hip function were 2.89±0.81mg/dl, and 36.8±10.9points, respectively. The mHHS were compared between before and one year after surgery. It was examined the correlation between preoperative DAS28-CRP and mHHS. Moreover, the evaluation targeting 44 joints revealed 20 hip joints with affected joints except operated hip joint in the lower limbs (LL group). Other joints divided into non-LL group The mHHS and preoperative DAS28-CRP were compared between the two groups. Results: mHHS one year after surgery averaged 74.6 points and were improved in all cases. Preoperative DAS28-CRP were negatively correlated with pre- and postoperative mHHS (r=-0.537 and -0.713 respectively). Preoperative DAS28-CRP in LL group was significantly higher compared with non-LL group. Moreover, although preoperative mHHS were no significant difference between two groups, postoperative mHHS was significantly lower in LL group compared with non-LL group. Conclusion: Singh JA et al. reported that although there was no significant difference in the improvement of pain, the outcomes for daily activities were significantly worse in the RA patients than in the OA patients. In the present study, the preoperative DAS28-CRP was significantly and negatively correlated with the pre- and postoperative mHHS. This indicates that the preoperative disease activity of RA affected the functional outcomes after THA. We also demonstrated that the involvement of the other joint of the lower limbs at the time of THA led to poor postoperative function of the hip. RA is an inflammatory disease of multiple joints, unlike OA. In order to improve the surgical outcomes in RA patients after THA, preoperative control of the disease activity of RA and treatment of the affected other joints of the lower limbs are important.

Disclosure of Interest: None declared

P06 ROLE OF CCR7 LIGANDS CCL19 AND CCL21 IN RHEUMATOID ARTHRITIS AND OSTEOCLAST ACTIVITY
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Problem Statement: There have been some studies suggesting an association of elevated levels of CCL19 and CCL21 chemokines and their receptor CCR7 with rheumatoid arthritis (RA) pathogenesis. Bone resorption by osteoclasts is one of major pathogenic features of RA. However, the role of CCL19 and CCL21 and their receptor CCR7 in osteoclast activity has not been addressed. Methods: The expression levels of CCL19 and CCL21 in synovial fluid and serum of RA patients were measured by ELISA. Gene expression omnibus datasets were analyzed to gain supporting evidence for the link between these chemokines and their receptor. CCL19, CCL21, and CCR7 levels in primary murine osteoclasts derived from bone marrow cells were measured by real-time polymerase chain reaction, Western blotting, flow cytometry, and ELISA. Transwell and Oris systems were used to assess cell migration. In vitro bone resorption assays were performed with calcium phosphate-coated dishes or dentin slices. A mouse calvarial bone resorption model was used to examine
in vivo effects of CCL19 and CCL21 on bone resorption. Results: The expression of CCL19, CCL21, and CCR7 was found to be higher in RA patients than in osteoarthritis patients. Inflammatory stimuli, TNF-a, IL-1b, and LPS, stimulated CCR7 expression in osteoclasts differentiating from bone marrow-derived macrophages. CCL19 and CCL21 increased osteoclast migration and resorption activity. The presence of CCR7 was required for the effects on osteoclast migration and bone resorption. Furthermore, inhibition of the Rho signaling pathway attenuated those effects. The stimulatory effect of osteoclastic bone resorption by CCL19 and CCL21 was also observed in the mice calvarial model. Conclusion: In addition to supporting a link between RA and CCL19/CCL21 chemokines, this study indicates that CCL19/CCL21 play important roles for bone destruction by increasing osteoclast migration and resorption activity via the Rho signaling pathway. Therefore, the interaction between CCL19/CCL21 and CCR7 may be a useful target in developing therapeutics against RA.

Disclosure of Interest: None declared

P07
A SINGLE-CENTER TWO-YEAR PROSPECTIVE OBSERVATIONAL STUDY FOR DISCONTINUATION OF BIOLOGICS IN FORTY PATIENTS WITH RHEUMATOID ARTHRITIS: ANALYSIS OF COINCIDENCE RATE OF AFFECTED JOINTS AT RELAPSE
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Problem Statement: With the biologics, many patients with rheumatoid arthritis (RA) can achieve remission. Although some patients maintain bio-free remission, more than half of the patients will relapse in the long-term observation. There is no report of analysis of the coincidence rate of affected joints at relapse. Methods: We registered 40 RA patients who maintained of clinical remission (DAS28-CRP < 2.3) for more than a year. If the patients had more than low disease activity, the patients dropped out of this study. Patients who remained in remission were observed for up to 2 years. The coincidence ratio of the affected joints at relapse was analyzed by comparing the 44 joints. Results: Fourteen (35%) patients remained remission for two years and 26 (65%) relapsed during the observation period. The mean ± standard deviation; SD number of tender joints before the start of the biologics and at the relapse after bio-free remission was 8.8 ± 6.7 and 5.2 ± 5.6. The mean ± SD number of swollen joints before the start of the biologics and at the relapse after bio-free remission was 6.6 ± 4.5 and 3.0 ± 3.8. Both number of tender joints and swollen joints showed a statistically significant decrease (p < 0.01) at relapse after bio-free remission compared to before the start of biologics. The median (minimum - maximum value) of the coincidence ratio of the swollen and tender joints at relapse was 66.7 (0 - 100) (%). Conclusion: In our study, the affected joints showed a high coincidence ratio at the relapse after bio-free remission.

Disclosure of Interest: None declared

P08
PATHOGENIC ROLES OF CXCL10 SIGNALING THROUGH CXCR3 AND TLIR4 IN A MURINE RHEUMATOID ARTHRITIS MODEL
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Problem Statement: Rheumatoid arthritis (RA) is a chronic autoimmune disease that is characterized by uncontrolled joint inflammation and destruction of bone and cartilage. We previously reported that C-X-C motif chemokine 10 (CXCL10) has crucial roles in the joint inflammation and bone destruction in arthritis. However, the specific mechanisms by which CXCL10 regulates the recruitment of inflammatory cells and the production of osteoclastogenic cytokines in RA progression are not fully understood. Methods: Male 8-week-old mice were injected intravenously with a 5-clone cocktail of collagen type II antibodies. The severity of arthritis was assessed according to paw swelling. Histological evaluation (TRAP, H&E, and Safranin O staining) and Immunohistochemical analysis using antibody against were performed on decalcified paraffin-embedded tissue sections. Migration assay and immunoblotting were carried out in bone marrow-derived macrophages and CD4+ T cells. Results: CXCL10 induces the migration of inflammatory cells through the CXCR3-ERK axis but does not require the TLIR4 receptor for this function. Both the CXCR3 and TLIR4 receptors are required for CXCL10 to stimulate osteoclastogenic cytokine production in CD4+ T cells. The activated calcineurin-dependent NFATc1 pathway is essential for CXCL10-induced RANKL expression in CD4+ T cells. Cxcl10+ and Cxcr3−/− mice have less inflammation and bone destruction than wild-type mice do in a collagen antibody-induced arthritis model, resulting in ameliorated development and progression of rheumatoid arthritis. Conclusion: These findings highlight the importance of CXCL10 signaling in the pathogenesis of RA and provide previously unidentified detail of the mechanisms by which CXCL10 induces the development of arthritis.

Disclosure of Interest: None declared

P09
20 YEARS OF EXPERIENCE WITH METHOTREXATE IN RHEUMATOID ARTHRITIS
AN ANALYSIS FROM THE RHUMADATA® CLINICAL DATABASE AND REGISTRY
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Problem Statement: Methotrexate has become the anchor drug for the treatment of rheumatoid arthritis since the end of the eighteen. It has also been associated with the development of all the biologic agents, apremilast, and the JAK antagonists. Worldwide registries have devoted the majority of their publications to these different new agents. Very few have devoted their attention to methotrexate. Methods: The data from RA patients exposed to methotrexate at the Institut de Recherche en Rhumatologie de Montréal and the Centre d’Ostéoporase et de Rhumatologie de Québec either in monotherapy or combination with other csDMARDS, bsDMARDS, or toDMARDS were extracted from the database since its initiation. Three periods were identified: before December 31st, 1999, from January 1st 2000 to December 31st 2009, and from January 1st 2010 to September 2nd 2016. Descriptive demographics. Including age, gender, diagnosis date and duration, comorbidities, rheumatoid factor and anti-CCP status, disease activity score, methotrexate, dose, duration, and route of administration, adverse events profile and the reason for stopping for each cohort were tabulated. Comparative effectiveness using Kaplan-Meyer survival analysis and safety profile of the different cohorts are also tabulated. Results: The data from 1074, 2434, and 1688 patients was extracted for each of the three treatment periods. The median age at treatment initiation, for each group, is respectively 47.3 years, 52.6 years and 55.7 years, and the female/male ratio is maintained at 3:1 throughout the different eras. Median initial doses of s/c methotrexate are higher than the PO route. S/C doses used increased through the different periods. Adverse events explain near 50% of methotrexate arrest, while inefficacy reason decreases significantly throughout years. GI and hepatic events are the primary adverse reactions reported (about 50% of the time). Methotrexate retention, when used in monotherapy or with a biologic agent, were higher in the first era. Conclusion: This study describes the use of methotrexate in RA patients throughout the years. The increased age of the exposed population coincides with the aging of the population and the used of MTX in that population. Mean MTX dose usage also increases over time. This could be attributed to the better understanding of MTX usage through the biologic agent development era. The growing popularity of MTX s/c administration parallels the improved knowledge about its better bioavailability and efficacy and the reduction of some side effects. Its retention over time reflects alternative treatment availability and a new
**P10**

**20 YEARS OF EXPERIENCE WITH METHOTREXATE IN PSORIATIC ARTHRITIS AN ANALYSIS FROM THE RHUMADATA® CLINICAL DATABASE AND REGISTRY**

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**Problem Statement:** Methotrexate has become the anchor drug for the treatment of psoriatic arthritis since the end of the eighties. It has been associated with the development of all the biologic agents, apremilast, and the JAK inhibitors. Worldwide registries have devoted the majority of their publication to the different new agents mostly in rheumatoid arthritis. Very few has dedicated their attention to methotrexate in psoriatic arthritis.

**Methods:** Psoriatic arthritis patients exposed to methotrexate at the Institut de Recherche en Rhumatologie de Montréal and the Centre d’Ostéoporose et de Rhumatologie de Québec either in monotherapy or combination with other csDMARDS, bsDMARDS, or tsDMARDS were extracted from the database since its initiation. Three periods were identified: before December 31st, 1999, from January 1st, 2000 to December 31st, 2009, and from January 1st, 2010 to September 2nd, 2016. Descriptive demographics. Including age, gender, diagnosis date and duration, comorbidities, disease activity score, methotrexate dose, duration, and route of administration, adverse events profile and the reason for stopping for each cohort were tabulated. Comparative effectiveness using Kaplan-Meier survival analysis and safety profile of the different cohorts are also tabulated.

**Results:** For each period, there are respectively 173 patients, 638 patients, and 767 patients, and the ratio female/male is maintained 1:1 throughout the different eras. The median age at treatment initiation, for each era, is respectively 42.1 years, 46.7 years and 49.1 years. Median S/C and PO MTX dose increase over time. Median initial doses of S/C methotrexate (25 mg) are higher than the PO dose (20 mg). Adverse events explain near 25% of methotrexate arrest, while inefficacy reason decreases significantly throughout the observation periods. GI and hepatic events are the main reported adverse events (about 50% of the time). Methotrexate retention, when used in monotherapy, were higher in the first era as biologic agents were unavailable during that period.

**Conclusion:** This study describes the use of methotrexate in PsA patients through the years. Dosages and S/C usage have significantly increased over time. S/C MTX usage has gained more adepts in recent years. The age increase over time is the reflect of the natural aging of our population of patients as well as MTX usage knowledge improvement associated with the biologic agent development era. It’s retention over time reflects alternative treatment availability and a new appreciation for its therapeutic usefulness even in older patients. MTX in monotherapy and combination with other agents is still the preferred anchor medication in psoriatic arthritis.

**Disclosure of Interest:** None declared

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**P11**

**NAMPT IS AN ESSENTIAL CATABOLIC REGULATOR OF RA-MEDIATED PERIODONTAL INFLAMMATION**

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**Problem Statement:** Recent studies have indicated a potential correlation between rheumatoid arthritis (RA) and periodontal inflammation. We undertook this study to verify whether RA mediates periodontitis-like phenotypes in experimental mouse models of RA, and to explore the role of nicotinamide phosphoribosyltransferase (NAMPT) in periodontal inflammation during RA pathogenesis. **Methods:** Periodontal inflammation and alveolar bone loss have been reported in mice with collagen-induced arthritis (CIA) and in genetically modified tumor necrosis factor-alpha (TNF-a) transgenic mouse models. Among the adipokines examined in our study, NAMPT expression was markedly upregulated in the periodontal ligament (PDL) tissues in RA mouse models, and in human PDL cells stimulated by the proinflammatory cytokines, interleukin (IL)-1β and TNF-a. **Results:** When NAMPT was overexpressed with the Nampt-synthesizing adenovirus vector (Ad-Nampt), the PDL cells exhibited an increased expression of cytokines (IL6), chemokines (IL8 and CCL5), inflammatory mediators (COX-2), and matrix-degrading enzymes (MMP1 and MMP3). Inhibition of NAMPT by the intracellular NAMPT (INAMPT) inhibitor, FB866, or by the situin inhibitor, nicotinamide, in PDL, cells, led to inhibition of the IL1β or Ad-Nampt-induced upregulation of catabolic factors, whereas treatment with recombinant NAMPT protein or blockade of extracellular NAMPT (eNAMPT) with blocking antibody did not. Moreover, NAMPT inhibition by the intraperitoneal or intragingival injection of FB866 in CIA mice inhibited periodontal tissue damage, under conditions of RA. **Conclusion:** Thus, our results verified the co-occurrence of RA and periodontal inflammation using experimental mouse models of RA, suggesting that (INAMPT in PDL cells plays a pivotal role in the pathogenesis of RA-mediated periodontal inflammation by regulating the expression levels of catabolic genes, such as IL6, IL8, CCL5, COX-2, MMP1, and MMP3.

**Disclosure of Interest:** None declared

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**P12**

**LONG TERM RESULT OF PATELLAR NON-RESURFACING IN TOTAL KNEE ARTHROPLASTY FOR RHEUMATOID ARTHRITIS**

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**Problem Statement:** Patellar resurfacing in total knee arthroplasty (TKA) remains controversial. For the rheumatoid arthritis, a number of authors have recommended routine patellar resurfacing of patella in patients with rheumatoid arthritis. However, few studies report highly satisfactory results in terms of pain relief and function in rheumatoid arthritis and recommended non-resurfacing TKA to avoid the potential complications associated with prosthetic patellar replacement. So, we investigated long-term result of patellar non-resurfacing in TKA for rheumatoid arthritis. To investigate whether patellar resurfacing in TKA is appropriate in patients with rheumatoid arthritis. **Methods:** A total of 13 primary TKAs without a resurfacing patella were studied in 9 patients with rheumatoid arthritis. TRAs were performed at our institution between January 2000 and December 2007. All TKAs were performed by a single surgeon. All patients were females, and the mean age at the time of surgery was 64.9 years (range 51–76 years). The mean follow-up period after surgery was 10.9 years (range 9–12 years). Clinical assessments after surgery were evaluated by a Knee Society score and patella-specific questions at all intervals. Questions included the presence of anterior knee pain (AKP), the relationship of pain with stair climbing and arising from a chair and the presence of patellar crepitus. Radiological evaluations were performed immediately after the surgery and at the time of follow-up examination. Parameters of radiographic examination were a lateral shift rate, tilting angle, thickness of patella, patella height. **Results:** The mean knee score was 86.1 ± 9.3 (range 70–90) and the mean function score was 71.2 ± 19.6 (range 50–100) at the last follow-up. The rate of occurrence of anterior knee pain was 7.8% (1 case) and that of rising from a chair or stair climbing was 0% at last follow-up. During the follow-up period, no patient underwent revision surgery for symptoms related to the patellofemoral joint. Parameters of radiographic examination were not significant difference in immediately after surgery, mid-term, and the last follow up.(table1)
Conclusion: In this study, there was no change in radiographic examination and clinical examination, and no patient underwent revision surgery for symptoms related to the patellofemoral joint. A non-resurfacing patella in TKA for rheumatoid arthritis could obtain good long-term results.

Disclosure of Interest: None declared

P13 MORNING STIFFNESS IN PATIENTS WITH RHEUMATOID ARTHRITIS: INVESTIGATING THE RELATIONSHIP BY ULTRASONOGRAPHY

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Problem Statement: The duration of morning stiffness (MS) was part of the American classification criteria for rheumatoid arthritis (RA), but it was excluded from a recent update of this criteria. It is now regarded as a less valuable parameter for assessing RA. However, RA-related MS has an impact by reducing a patient’s ability to work and contributes to early retirement.

Therefore, MS is an important symptom in patients with RA. We investigated the association between MS and clinical and laboratory parameters, including components of current composite scores and ultrasonography (US) assessments in patients with RA. The purpose of our study was to investigate the association between MS and disease activity by assessing patients with RA using US.

Methods: We conducted a retrospective, cross-sectional analysis of 16 consecutive patients with RA (7 males and 9 females; mean ± SD age: 55.3 ± 9.7 years, range: 33–65 years; mean ± SD disease duration: 3.8 ± 3.3 years, range: 0–11 years). All patients were <65 years old with bone destruction stage of ≤2, according to Steinbrocker staging. Patients were routinely assessed by US of metacarpophalangeal and proximal interphalangeal joints of the wrist using a biplane approach. Synovial vascularity and tenosynovitis of flexor tendon sheath / Extensor tendon sheath were assessed on both Ultrasonography. The estimate of MS duration was part of the American classification criteria for rheumatoid arthritis (RA), but it was excluded from a recent update of this criteria. It is now regarded as a less valuable parameter for assessing RA. However, RA-related MS has an impact by reducing a patient’s ability to work and contributes to early retirement.

Results: We found that the duration of MS was not associated with joint synovitis but with tenosynovitis.

Conclusion: The duration of MS was not associated with joint synovitis but with tenosynovitis.

Disclosure of Interest: None declared

P14 SKIN LESIONS AS A RESULT OF BIOLOGIC TREATMENT IN PATIENTS WITH RA AND AS

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Problem Statement: Biologics has been widely used in the treatment of rheumatoid arthritis (RA) and ankylosing spondylitis (AS). Recent studies report an increased risk of skin cancer in immunosuppressed patients with rheumatoid diseases treated with bDMARDs (biologic therapy). Drug-induced immunosuppression was a risk factor for nonmelanoma skin cancer (NMSC), particularly squamous cell tumors. This study was undertaken to assess the risk of skin cancers and other skin disorders in AS and RA patients in relation to therapies, including tumor necrosis factor inhibitor (TNFi), monoclonal antibody against the interleukin-6 receptor (tocilizumab, TcIl), and monoclonal antibody against the protein CD20 (rituximab, RTx).

Methods: This retrospective study used data from the Registry of patients treated with bDMARDs in Wroclaw Medical Hospital, from October 2009 to March 2017. Results: 144 patients were studied including 97 with RA (76 women) and 47 with AS (9 women); their mean age was 52 years in RA (19-75) and 44 in AS (26-73). In RA group following bDMARDs were prescribed: TNFi, monoclonal antibody against the interleukin-6 receptor (tocilizumab, TcIl), and monoclonal antibody against the protein CD20 (rituximab, RTx).

Conclusion: The current study explored the adverse events related to the skin during treatment with including TNFi.

Disclosure of Interest: None declared

P15 ASSESSING SLEEP QUALITY BY PATIENTS WITH RHEUMATOID ARTHRITIS AND OSTEOARTHRITIS

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Problem Statement: Rheumatoid arthritis (RA) symptoms are most severe in the morning, especially during exacerbations. Patients experience then the highest stiffness and joint pain. This suggests that there exists a relationship of...
Problem Statement: Osteoarthritis (OA) often coexists with osteoporosis owing to a common age demographic. While exercise is commonly recommended as a therapeutic intervention for both conditions, the exercise prescription for each traditionally differs quite markedly. The heavy resistance and impact load training required to stimulate bone is not usually supported knee arthroscopy in osteoarthritis management [2], the Australian Commission on Safety and Quality in Health Care sought to develop a clinical care standard to address the variation and improve the appropriateness of care for people with knee osteoarthritis.

Results: Seven quality statements, with accompanying indicators, were developed for the standard, covering the care pathway for people with knee osteoarthritis: comprehensive assessment, diagnosis, patient education, weight loss and exercise, medicines, patient review, and referral to joint replacement surgery. The role of weight loss and exercise in helping to reduce pain and improve physical function is discussed. The lack of effectiveness of arthroscopy in knee osteoarthritis management is also addressed.

Conclusion: Implementation of the standard may improve patient outcomes and reduce unwarranted variation in the management of knee osteoarthritis.

Disclosure of Interest: None declared
**P18**

**ACCELERATED DEVELOPMENT OF AGING-ASSOCIATED AND INSTABILITY-INDUCED OSTEOARTHRITIS IN 12/15-LIPOXYGENASE DEFICIENT MICE**

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**Problem Statement:** 12/15-Lipoxigenase (12/15-LOX) catalyzes the generation of various anti-inflammatory lipid mediators, and has been implicated in several inflammatory and degenerative diseases. However, there is currently no evidence that 12/15-LOX has a role in osteoarthritis (OA). The aim of this study was to investigate the role of 12/15-LOX in the pathogenesis of OA.

**Methods:** The development of aging-associated and destabilization of the medial meniscus (DMM)-induced OA were compared in 12/15-LOX-deficient (12/15-LOX−/−) and wild-type (WT) mice. The extent of cartilage damage was evaluated by histology. The expression of OA markers was evaluated by immunohistochemistry and RT-PCR. Cartilage explants were stimulated with IL-1α in the absence or presence of the 12/15-LOX metabolites, 15-HETE, 13-HODE or LXA4, and the levels of MMP-13, NO and PG E2 were determined. The effect of LXA4 on the progression of OA was evaluated in WT mice. Results: The expression of 12/15-LOX in cartilage increased during the progression of DMM-induced OA and with aging in WT mice. Cartilage degeneration was more severe in 12/15-LOX−/− mice compared to WT mice in both models of OA, and this was associated with increased expression of MMP-13, ADAMTS5, iNOS, and mPGES-1. Treatment of cartilage explants with 12/15-LOX metabolites, suppressed IL-1α-induced production of MMP-13, NO and PG E2, with LXA4 being the most potent. Intra-peritoneal injection of LXA4 reduced the severity of DMM-induced cartilage degradation.

**Conclusion:** These data demonstrate an important role of 12/15-LOX in the pathogenesis of OA, and suggest that activation of this pathway may provide a novel strategy for prevention and treatment of OA.

**Disclosure of Interest:** None declared

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**P19**

**CALCIUM-PHOSPHATE INCREASES MMP3 AND MMP13 THROUGH NFKB, P38, ERK1/2 MAP KINASE SIGNALING IN HYPERTEPTIC HYPERCHONDROCYTE?**

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**Problem Statement:** An activation of osteoclasts in the subchondral bone is a major histologic feature of early-stage osteoarthritis (OA), and it can increase calcium (Ca) and phosphate (Pi) level in the subchondral bone milieu. Considering that articular cartilage gets most of nutrition from subchondral bone by diffusion, this increase of Ca and Pi can affect the physiology of articular chondrocytes. We address here the catabolic role of Ca and Pi in articular cartilage and their molecular mechanisms. **Methods:** The surgical destabilization of the medial meniscus (DMM) model is used to induce OA in 10-week-old male C57BL/6J mice. Ca and Pi level in articular cartilage was quantified with Time-of-Flight Secondary Ion Mass Spectrometry (TOF-SIMS) analyses in 2 weeks of DMM surgery. For a hypertrophic differentiation of chondrocyte, limb bud mesenchymal progenitor cells at embryonic day10.5 were cultured at a density of 2.5 x 10^4/10-μl drop for 12 days and then treated with Ca 2.5 mM or Pi 1.5 mM for 1 day. Results: Early-stage of articular cartilage after 2wks of DMM surgery showed an increase of Ca+ but not PO3- ion, and Ca+ ion tended to co-localize with PO3- in articular cartilage. When hypertrophic chondrocytes were treated with Ca and Pi, microarray analysis showed a significant increase of MMP3, MMP13, Adamts1 and Pigs2 (Cox2) mRNA. Among them, the increase of MMP3 and MMP13 was replicated in the early release pCR and Western blot analysis. In molecular level, Ca-Pi activated NF-kB, p38 and Erk1/2 MAP kinase, Akt, and NFAT1 signaling in hypertrophic chondrocytes. Among them, NF-kB, p38 and Erk1/2 MAP kinase signaling were responsible for the Ca-Pi-mediated increase of MMP3 and MMP13. Among TLR ligands, only TLR2 and TLR4 ligands increased both MMP3 and MMP13 in hypertrophic chondrocytes. However, the chemical inhibition of TLR2 or TLR4 did not ameliorate Ca-Pi-mediated increase of MMPs. Ca-Pi increased the expression of EEA1, early endocytosis marker, and changed a subcellular distribution of caveolin-1, the essential protein of matrix vesicles, suggesting an increasing endocytosis by Ca-Pi in primary chondrocytes. **Conclusion:** Calcium-Pi induced MMPs and MMP13 through NF-kB, p38 and Erk1/2 MAP kinase in hypertrophic chondrocytes, suggesting that Ca-Pi can involve the early pathologic process of cartilage degeneration.

**Disclosure of Interest:** None declared

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**P20**

**INFLUENCE OF COWPEA ISOFLAVONES AND VITAMIN D IN STIMULATING THE OSTEOGENIC GENE EXPRESSION FOR THE TREATMENT OF OSTEOPOROSIS USING MG-63 HUMAN OSTEOSARCOMA CELL LINES.**

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**Problem Statement:** Bone metabolic disorder namely Osteoporosis (OSP), aggravate as people age and women reach their menopause stage. Micro-architectural deterioration of bone tissue and low bone mass are major characteristics of OSP. Hormonal disparity, age aspect, imbalance in bone remodeling process could be considered as some of the factors for OSP. To combat osteoporotic morbidity, Phytoestrogens preferably isoflavones, owing high clinical benefits and estrogen mimicking activity are being preferred nowadays in the form of natural food diet. In present study, the efficacy of Cowpea (Vigna unguiculata) member of Fabaceae family, rich in isoflavones along with Daidzein, Genistein and Vitamin-D are tested on MG-63 human osteosarcoma cell line, an osteoblast model to study the gene expression levels of bone biomarkers after and before treatment. **Methods:** Initially MG-63 cells are exposed to Daidzein (Dz) and Genestein (Ge) [Positive controls, Dz and Ge], D+G, Cowpea extract (CPF) and Vitamin-D (Vit-D), C+V and C+V+D+G (ALL) individually and in combinations for 48 Hrs as per standardized cell culture techniques. Using EC50 concentrations, the cells are further tested for expression levels of the bone specific markers namely ALP (Alkaline phosphatase), OC (Osteocalcin) and BMP-2 (Bone morphogenic protein) using western blot analysis. Results: The Gene expression levels of ALP (Alkaline phosphatase), OC (Osteocalcin) and BMP-2 (Bone morphogenic protein) significantly increased after treatment when compared to control by western blot analysis. Thus gene expression level studies through western blot analysis showed the stimulating effects of Cowpea isoflavones along with the vitamin D in the bone formation.

**Image:**

**Conclusion:** Implication of supplementation of the whole extract of naturally rich CPF in the present in vitro investigation study, provides a great amount of Freedom to Operate which could eventually be licensed/commercialized into market in the form of capsules and tablets for the treatment of osteoporosis.

**Disclosure of Interest:** None declared
**Problem Statement:** Pharmacological treatment of arthritis is palliative. Recent study have given attention to DNA polymeric molecules—polydeoxynucleotide (PDRN) and polynucleotide (PN) as a new alternative treatment of arthritis. However, the underlying mechanisms of these agents in arthritis are not fully understood. In this study, we applied transcriptome analysis to investigate the gene expression profiles of PDRN and PN's effects on in vitro arthritis model. Methods: Under hypoxic condition, human chondrosarcoma cells (SW-1353) were stressed for 3 hr, 24 hr in the presence of IL-1β, and then subsequently treated PDRN and PN for another 24 hr followed by Transcriptome analysis. Differentially expressed genes (DEG), the result of transcriptome study, was analyzed by a program Database of Annotation Visualization and Integrated Discovery (DAVID), which yielded Kyoto Encyclopedia of Genes and Genomes (KEGG) pathway. DEG results were validated by quantitative RT-PCR (qRT-PCR). Results: In 3 hr-stress condition, the top enriched pathways included immune-related pathways such as cytokine-cytokine receptor interaction, chemokine signaling pathway. Especially pattern recognition receptors (PRRs) signaling pathways (e.g. NOD-like receptor signaling pathway, cytosolic DNA-sensing pathway, toll-like receptor signaling pathway and RIG-I-like receptor signaling pathway) were the top enriched pathways included immune-related pathways such as cytokine-cytokine receptor interaction, chemokine signaling pathway. Especially pattern recognition receptors (PRRs) signaling pathways (e.g. NOD-like receptor signaling pathway, cytosolic DNA-sensing pathway, toll-like receptor signaling pathway and RIG-I-like receptor signaling pathway) were identified after PDRN and PN treatment in 3 hr-stress condition. In 24 hr-stress condition, the top enriched pathways included cytokine-cytokine receptor interaction, chemokine signaling pathway, cytosolic DNA-sensing pathway, NOD-like receptor signaling pathway and Toll-like receptor signaling pathway. After PDRN treatment, Toll-like receptor signaling pathway was identified in 24 hr-stress condition. Furthermore, immune-related pathways, cytokine-cytokine receptor interaction, chemokine signaling pathway and cytosolic DNA-sensing pathway were related in 24 hr-stress condition after PN treatment. We validated genes using qRT-PCR. In 3 hr-stress condition, expressions of candidate genes were not significantly different between two groups. In 24 hr-stress condition showed that, among majority genes represented the same pattern as KEGG pathway. Conclusion: Both PDRN and PN, DNA polymeric molecules, were shown to regulate immune-related pathways—Toll-like receptor signaling pathway, cytokine-cytokine receptor interaction, chemokine signaling pathway, cytosolic DNA-sensing pathway—in on in vitro arthritis model. These results may provide potential therapeutic mechanism of PDRN and PN in arthritis.

**Disclosure of Interest:** H. J. Kim Grant/ Research Support from: 2015 EMBRI Grant, A. Baek: None declared, M. Kim: None declared, S.-R. Cho: None declared

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**P23**

**LABISIA PUMILA PROTECTS CARTILAGE DEGRADATION IN CARTILAGE EXPLANT AND POSTMENOPAUSAL RAT MODELS OF OSTEOARTHRITIS**

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**Problem Statement:** Labisia pumila (LP), a medicinal plant from Southeast Asia has been proven to have anti-inflammatory and antioxidant properties. This study hypothesized that LP will have beneficial effects on osteoarthritis (OA). This preclinical study evaluated the potency of Labisia pumila extract to ameliorate osteoarthritis (OA) in cartilage explant and postmenopausal rat models. Methods: The ex-vivo explant culture method was used to test if the extract could directly inhibit cartilage degradation under inflammatory conditions. For in vivo study, osteoarthritis-induced ovariectomised Sprague Dawley female rats were grouped (n=8) into: untreated OA; OA+Diclofenac (5 mg/kg); OA+LP extract (150 and 300 mg/kg); and compared with healthy control. Monosodium iodoacetate were injected into the right intra-articular knee joints to induce osteoarthritis. The rats were evaluated for OA severity via physical (microCT and macroscopic) and biochemical, ELISA after 8 weeks of treatment. Results: The LP and diclofenac protected chondrocyte by reducing the proteoglycan release and NO production in the ex-vivo explant cartilage. The OA rats treated with LP and diclofenac had significant reduction in cartilage erosion and collagenase activities (MMP1, MMP3 and MMP13), collagen degradation (CTX II), and inflammation (prostaglandin E2, PGE2) markers compared to the control OA rats. The LP produced significantly better reduction than diclofenac for the MMP 3 and CTX II biomarkers in the rat model. Conclusion: The results indicated that the LP extract helped suppress OA progressions by reducing inflammation, delaying cartilage degeneration, preventing collagen degradation, and inhibiting collagenase activities. This study suggest LP may be a potential complementary or alternative therapy for the management of OA.

**Disclosure of Interest:** None declared

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**P21**

**GENE EXPRESSION PROFILING FOR CONFIRMATION OF EFFECTS OF DNA POLYMERIC MOLECULES ON IN VITRO ARTHRITIS MODEL**

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**Problem Statement:** Pharmacological treatment of arthritis is palliative. Recent study have given attention to DNA polymeric molecules—polydeoxynucleotide (PDRN) and polynucleotide (PN) as a new alternative treatment of arthritis. However, the underlying mechanisms of these agents in arthritis are not fully understood. In this study, we applied transcriptome analysis to investigate the gene expression profiles of PDRN and PN's effects on in vitro arthritis model. Methods: Under hypoxic condition, human chondrosarcoma cells (SW-1353) were stressed for 3 hr, 24 hr in the presence of IL-1β, and then subsequently treated PDRN and PN for another 24 hr followed by Transcriptome analysis. Differentially expressed genes (DEG), the result of transcriptome study, was analyzed by a program Database of Annotation Visualization and Integrated Discovery (DAVID), which yielded Kyoto Encyclopedia of Genes and Genomes (KEGG) pathway. DEG results were validated by quantitative RT-PCR (qRT-PCR). Results: In 3 hr-stress condition, the top enriched pathways included immune-related pathways such as cytokine-cytokine receptor interaction, chemokine signaling pathway. Especially pattern recognition receptors (PRRs) signaling pathways (e.g. NOD-like receptor signaling pathway, cytosolic DNA-sensing pathway, toll-like receptor signaling pathway and RIG-I-like receptor signaling pathway) were the top enriched pathways included immune-related pathways such as cytokine-cytokine receptor interaction, chemokine signaling pathway, cytosolic DNA-sensing pathway, NOD-like receptor signaling pathway and Toll-like receptor signaling pathway. After PDRN treatment, Toll-like receptor signaling pathway was identified in 24 hr-stress condition. Furthermore, immune-related pathways, cytokine-cytokine receptor interaction, chemokine signaling pathway and cytosolic DNA-sensing pathway were related in 24 hr-stress condition after PN treatment. We validated genes using qRT-PCR. In 3 hr-stress condition, expressions of candidate genes were not significantly different between two groups. In 24 hr-stress condition showed that, among majority genes represented the same pattern as KEGG pathway. Conclusion: Both PDRN and PN, DNA polymeric molecules, were shown to regulate immune-related pathways—Toll-like receptor signaling pathway, cytokine-cytokine receptor interaction, chemokine signaling pathway, cytosolic DNA-sensing pathway—on in vitro arthritis model. These results may provide potential therapeutic mechanism of PDRN and PN in arthritis.

**Disclosure of Interest:** H. J. Kim Grant/ Research Support from: 2015 EMBRI Grant, A. Baek: None declared, M. Kim: None declared, S.-R. Cho: None declared

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**P22**

**MICROCURRENT AS A PREVENTIVE AND THERAPEUTIC TREATMENT FOR CALF MUSCLE ATROPHY IN IMMOBILIZED RABBIT**

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**Problem Statement:** To investigate the prevention and regeneration of microcurrent electric stimulation on gastrocnemius (GCM) muscle atrophy in rabbits induced by cast immobilization. **Methods:** Fifteen male New Zealand white rabbits were randomly allocated into 3 groups of 5 rabbits. Right GCM muscle was used for immobilization by cast for 2 weeks (IC). IC (group 1), IC and free reambulation (FR) for 2 weeks after cast removal (CR) (group 2), and IC and Microcurrent stimulation (MS) for 2 weeks after CR (group 3). Atrophic change of Rt. calf circumference, Compound muscle action potential (CMAP) of Rt. tibial nerve, thickness of Rt. GCM by ultrasound was calculated. Muscle composition of GCM muscle and cross sectional area (CSA) of muscle fibers was measured, proliferating cell nuclear antigen (PCNA) and bromodeoxyuridine (BrDU) positive cell ratio was calculated as the number of BrDU positive cells per muscle fiber. Results: Mean atrophic changes of Rt. calf circumference, amplitude of CMAP on Rt. tibial nerve, and Rt. medial and lateral GCM muscle thickness in group 3 were significantly greater than those in group 1 and 2 (p < .05). Mean CSA of medial GCM type 1 muscle fibers and PCNA and BrDU ratio in group 3 were significantly greater than those in group 1 and group 2, respectively (p < .05). **Conclusion:** Type 1 muscle was predominantly affected in immobilization induced GCM muscle atrophy. Miccrocurrent treatment showed preventive effect in progression and facilitating effect in regeneration of GCM type 1 muscle atrophy.

**Disclosure of Interest:** None declared

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**P24**

**LEVELS OF SERUM BIOMARKERS FROM A TWO-YEAR MULTICENTRE TRIAL ARE ASSOCIATED WITH TREATMENT RESPONSE ON KNEE OSTEOARTHRITIS**

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**Problem Statement:** There is an obvious need to identify biomarkers that could predict patient response to an osteoarthritis (OA) treatment. This post hoc study explored in a 2-year randomized controlled trial in knee OA patients, the likelihood of some serum biomarkers to be associated with a better response to chondroitin sulfate at reducing cartilage volume loss.
Methods: Eight biomarkers were studied: hyaluronic acid (HA), C reactive protein (CRP), adipsin, leptin, N-terminal propeptide of collagen Ila (PIIANP), C-terminal crosslinking telopeptide of type I collagen (CTX-1), matrix metalloproteinase-1 (MMP-1), and MMP-3. Patients were treated with chondroitin sulfate (1200 mg/d); n=57) or celecoxib (200 mg/day; n=62). Serum biomarkers were measured at baseline. The cartilage volume at baseline and its loss at 2 years was assessed by quantitative magnetic resonance imaging (MRI). Statistical analysis included ANCOVA. Results: As data from the original MOSAIC trial showed no differences in the lateral compartment between the two treatment groups in cartilage volume and loss in any comparison, only the medial compartment and its subregions were studied. Stratification according to the median biomarker levels was used to discriminate treatment effect. In patients with levels of biomarkers of inflammation (HA, leptin and adipsin) lower than the median, those treated with chondroitin sulfate demonstrated less cartilage volume loss in the medial compartment, condyle and plateau (p≤0.047). In contrast, chondroitin sulfate treated patients with higher levels of MMP-1 and MMP-3, biomarkers of cartilage catabolism, had less cartilage volume loss in the medial compartment, condyle and plateau (p≤0.050). Patients with higher levels of PIIAPP and CTX-1, biomarkers related to collagen anabolism and bone remodeling, respectively, had reduced cartilage volume loss in the medial condyle (p≤0.026) in the chondroitin sulfate group. Conclusion: This study is suggestive of a potentially greater response to chondroitin sulfate treatment on cartilage volume loss in knee OA patients with low level of inflammation and/or greater level of cartilage catabolism.

Disclosure of Interest: J. Martel-Pelletier Shareholder of: ArthroLab Inc., Consultant for: Bioiberica, J.-P. Raynauld Consultant for: ArthroLab Inc., F. Mineau; None declared, F. Abram Employee of: ArthroLab Inc., P. Paiement condyle (p≤0.026) in the chondroitin sulfate group. treated patients with higher levels of MMP -1 and MMP -3, biomarkers of metabolism. However, its role in the pathogenesis of osteoarthritis (OA) remains unknown. We undertook this study to explore the roles of DI1 in the development of OA and to evaluate the efficacy of a DI1 selective agonist in the treatment of OA. Methods: We compared the development of aging-associated OA and destabilization of the medial meniscus (DMM)-induced OA in DI1-deficient (DI1-/−) and wild-type (WT) mice. The progression of OA was assessed by histology, immunohistochemistry, and microcomputed tomography (micro-CT). Cartilage explants from DI1-/- and WT mice were treated with interleukin-1α (IL-1α) ex vivo, to evaluate proteoglycan degradation. The effect of intra-peritonal administration of the DI1 selective agonist BW245C on OA progression was evaluated in WT mice. Results: Compared to WT mice, DI1-/- mice had exacerbated cartilage degradation in both models of OA and this was associated with increased expression of MMP-13, and ADAMTS-5. In addition, DI1-/- mice demonstrated enhanced subchondral bone changes. Cartilage explants from DI1-/- mice showed enhanced proteoglycan degradation following treatment with IL-1α. Intraarticular injection of BW245C attenuated the severity of DMM-induced cartilage degradation and bony changes in WT mice. Conclusion: These findings indicate a critical role for DI1 signaling in OA pathogenesis. Modulation of DI1 functions may constitute a potential therapeutic target for the development of novel OA treatments.

Disclosure of Interest: None declared

P26 DELETION OF THE PROSTAGLANDIN D2 RECEPTOR DP1 EXACERBATES AGING-ASSOCIATED AND INSTABILITY-INDUCED OSTEOARTHRITIS
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Problem Statement: The D prostaglandin receptor 1 (DP1), a receptor for prostaglandin D2 (PGD2), plays important roles in inflammation and cartilage metabolism. However, its role in the pathogenesis of osteoarthritis (OA) remains unknown. We undertook this study to explore the roles of DI1 in the development of OA and to evaluate the efficacy of a DI1 selective agonist in the treatment of OA. Methods: We compared the development of aging-associated OA and destabilization of the medial meniscus (DMM)-induced OA in DI1-deficient (DI1-/−) and wild-type (WT) mice. The progression of OA was assessed by histology, immunohistochemistry, and microcomputed tomography (micro-CT). Cartilage explants from DI1-/- and WT mice were treated with interleukin-1α (IL-1α) ex vivo, to evaluate proteoglycan degradation. The effect of intra-peritonal administration of the DI1 selective agonist BW245C on OA progression was evaluated in WT mice. Results: Compared to WT mice, DI1-/- mice had exacerbated cartilage degradation in both models of OA and this was associated with increased expression of MMP-13, and ADAMTS-5. In addition, DI1-/- mice demonstrated enhanced subchondral bone changes. Cartilage explants from DI1-/- mice showed enhanced proteoglycan degradation following treatment with IL-1α. Intraarticular injection of BW245C attenuated the severity of DMM-induced cartilage degradation and bony changes in WT mice. Conclusion: These findings indicate a critical role for DI1 signaling in OA pathogenesis. Modulation of DI1 functions may constitute a potential therapeutic target for the development of novel OA treatments.

Disclosure of Interest: None declared

P27 MINIMALLY INVASIVE TOTAL KNEE ARTHROPLASTY IN OBESE OSTEOARTHRITIC PATIENTS
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Problem Statement: The aim of this study was to evaluate the clinical and radiological outcomes of obese osteoarthritic patients in minimally invasive total knee arthroplasty (MIS-TKA). Methods: The research examined 371 cases of MIS-TKA using the mini-midvastus approach performed from January 2006 to December 2006. All cases involved the use of minimally invasive surgery. The cases were classified 371 knees to group A (BMI<25, 114 knees), group B (25≤BMI<30, 179 knees) and group C (30≤BMI, 78 knees). Clinical results were assessed using the Hospital for Special Surgery (HSS) score and Knee Society score. Radiological evaluation included measurements of knee alignment. Results: Minimally invasive total knee arthroplasty was possible for all patients. On average, skin incision was 8.2±0.8 cm, 8.3±0.8 cm and 8.5±0.9 cm and the operation time was 86.4±10.4 min, 85.9±11.3 min and 89.0±11.4 min for Groups A, B and C, respectively, indicating no difference among the groups (p>0.05). There was no difference in terms of the accuracy of the tibial implant alignment, with 97.6%, 95.2% and 93.4% of each group showing 0±3 degrees varus angulation(p>0.05). With respect to the accuracy of the femoral
angle, 93.9%, 94.6% and 90.2%, respectively, had 6±3 degrees valgus angulation, demonstrating a reduced level of accuracy in Groups C (p<0.05).

The preoperative range of motion and knee society score of group C was less than that of group A and B (p<0.05), but there was no differences between each group at postoperative 3 month and 1 year follow-up (p>0.05).

Image:

Conclusion: MIS-TKA in obese osteoarthritic patients showed satisfactory clinical and radiological results without significant difference of surgical results compare to non-obese patients.

Disclosure of Interest: None declared

P28

COMBINATION OF EXTRAMEDULLARY TECHNIQUE AND MINIMALLY INVASIVE SURGERY IN TOTAL KNEE ARTHROPLASTY - MINIMUM 5 YEAR FOLLOW UP

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Problem Statement: The combination of extramedullary (EM) and minimally invasive surgery (MIS) technique can theoretically acquire the non-invasiveness which is an advantage of EM and, at the same time, the short incision and early rehabilitation which are advantages of MIS. But, the restricted vision of a limited space can cause the drawn-out operating time, uncertainty of alignment, and soft tissue injury. The hypothesis was that the EM-MIS group could reduce soft tissue injury while maintain alignment precision than EM group. Methods: The retrospective study was conducted on 400 patients who underwent unilateral TKA from January 2008 to December 2009, among whom 200 patients were classified as EM technique TKA group, and the other 200 patients were classified as EM-MIS TKA group. We analyzed their WOMAC score and KSS score for 5 years after their operation and compared their alignment precision. Results: Operation time in the EM group was 54.1±11.4mins, the EM-MIS group was 67.2±11.1mins. And the EM group had 1006.3±337.2mL blood loss after operation, and the EM-MIS group had 832.7±436.7mL. The EM-MIS group showed the remarkable reduction in the amount of blood loss. There were no differences in clinical outcomes and alignment of prosthesis between the two groups. Conclusion: Through the improvement of the instruments and operational techniques which are used to make the most of the limited operation space, these researchers developed EM-MIS technique and reduced soft tissue injury while maintain alignment precision.

Disclosure of Interest: None declared

P29

DO THE FINDINGS OF MRI, ARTHROGRAPHY, AND ULTRASONOGRAPHY REFLECT CLINICAL IMPAIRMENT IN PATIENTS WITH ADHESIVE CAPSULITIS OF THE SHOULDER?

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Problem Statement: To investigate the correlation between arthrography, magnetic resonance imaging (MRI), and ultrasonography (US) findings in patients with adhesive capsulitis (AC) of the shoulder and their clinical presentation as well as functional impairment. Methods: Seventy-five patients (27 males, 48 females; mean age 55.3 ± 9.8 years) who were clinically diagnosed as unilateral AC were recruited. A visual analog scale (VAS), passive shoulder range of motion (ROM), Constant-Murley score (CMS) were measured for clinical parameters. The thickness of axillary recess, coracohumeral ligament (CHL), and the enhanced portion in the rotator cuff interval were measured by using contrast-enhanced MRI. Single contrast arthrography as used to calculate the total score of shoulder arthographic criteria. US was used to measure the thickness of the inferior glenohumeral ligament (IGHL) and CHL, and the IGHL ratio and CHL ratio were calculated by comparing with the unaffected side. Results: None of MRI parameters was correlated with clinical assessment scores. The total score of shoulder arthographic criteria was negatively correlated with passive range of motion (PROM) of the total shoulder motion (p < 0.05), shoulder forward flexion (p < 0.05), and abduction (p < 0.05). The total CMS score was well correlated with the total score of shoulder arthographic criteria (p < 0.05). The total shoulder joint space capacity was positively correlated with PROM of the total shoulder motion (p < 0.05), and shoulder forward flexion (p < 0.05). The IGHL thickness, CHL thickness, and CHL ratio were negatively correlated with the shoulder external rotation (p < 0.05), respectively. Conclusion: The findings of US and arthrography in patients with AC of the shoulder were correlated with the clinical assessment scores. However, all measuring parameters on MRI were not correlated with clinical impairments. US is recommended as the preferred option for diagnosing AC of the shoulder.

Disclosure of Interest: None declared

P30

EXPLORING DETERMINANTS PREDICTING RESPONSE TO INTRA-ARTICULAR HYALURONIC ACID TREATMENT IN SYMPTOMATIC KNEE OSTEARTHROSIS: DATA FROM THE OAI

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Problem Statement: A major challenge regarding intraarticular hyaluronic acid (IAHA) treatment in knee osteoarthritis (OA) is identifying patients who will benefit most. This study aimed to identify determinants associated with response level to IAHA treatment for symptomatic knee OA. Methods: Data were from the OAI database. Subjects were selected based on the following question: “During the past 6 months, have you had an injection of HA in one or both knees for treatment of arthritis?” Included were subjects with radiographic OA who received a single treatment in one or both knees, and with data on demographics and WOMAC scores at visits before (T0) and after (T1; within 6 months) treatment. Data from the WOMAC pain scores were analyzed for demographic, clinical, and imaging [X-ray; Kellgren-Lawrence (KL) and joint space width (JSW), and MRI; cartilage volume (CV), bone marrow lesions (BML), and synovial fluid effusion size] at T0 and change (T1-T0) over
time. Subjects with WOMAC ≥0 at T0 were included and subdivided based on WOMAC pain score tertile (first=lower pain). Analyses were also done on “responders” (improvement in pain score ≥20%) and “non-responders” (unchanged or worsening of pain score). Results: Participants (310) received a total of 404 treatments (one per knee). WOMAC pain scores at T0 showed the three tertiles to be balanced, except for lower WOMAC score, BMI and KL grade and greater JSW (p<0.010) in the first and second vs the third tertile, and significantly greater CV and effusion size (p<0.033) in the first vs the third tertile, indicating a more severe disease in the latter. WOMAC pain score change showed a significant decrease (p<0.001) in the third vs the first and second tertiles. Participants with decrease in pain score ≥20% were greater in the third tertile (p<0.001). Other WOMAC scores (function, stiffness, total) yielded similar results. Analyses on participants with pain score ≥28 (third tertile, greatest probability of improvement in pain with IAHA treatment) showed that responders vs non-responders were usually younger (p=0.014), with greater medial compartment CV (p=0.046) and a trend toward lower BML score and greater JSW. Differences between responders and non-responders in all WOMAC score changes were significant (p<0.001). The majority of responders had a reduction in WOMAC scores (except stiffness) of about 40%, while non-responders showed worsening of symptoms. The use of concomitant arthritis medication was similar in both groups. Conclusion: This study has successfully allowed the identification of new reliable predictive factors that can identify patients who could benefit best from IAHA treatment. Patients with moderate to severe symptoms, younger, and with greater medial compartment CV are the most likely to respond to treatment with the greatest level of improvement. These predictive factors can easily be implemented in daily clinical practice and will be a useful guide for physicians.

Disclosure: This initiative was funded by Sanofi Canada.


P31 HYALURONIC ACID(HA) IN OA TREATMENT: A CANADIAN CONSENSUS.

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Problem Statement: Osteoarthritis (OA) is a chronic condition characterized by a loss of joint cartilage and is a major cause of disability in Canada, with an estimated CN$195 billion annual cost. Knee OA leads to persistent pain and loss of function, and treatment goals primarily focus on symptom relief and retention of function. Injecting supplemental intra-articular hyaluronic acid (IAHA) into the joint capsule has therapeutic benefits, and numerous recently published meta-analyses (MAs) and commentaries have highlighted new evidence on the role of IAHA therapy for knee OA. Methods: This review analyzed MA findings from 2015 to present to address controversies surrounding IAHA therapy for mild to moderate knee OA within the Canadian treatment context. Results: Our review showed consistent and statistically significant improvements in pain, function and stiffness up to 26 weeks with IAHA therapy compared to IA placebo or controls, regardless of MA size or trial quality. Three MAs reported improved outcomes with higher compared to lower molecular weight HAs. Conclusion: Available evidence suggests that HA therapy is safe with no increased risk of serious adverse events compared to placebo. The full therapeutic effect of IAHA therapy is of considerable clinical importance, consisting of the combined IA placebo and HA therapeutic effects. IAHA therapy is a safe and effective option for patients with mild to moderate knee OA failing first-line pharmacological therapy. Disclosure: This initiative was funded in an independent fashion by Sanofi Canada. The sponsor played no part in the design and development of this work.

Disclosure of Interest: J.-P. Raynauld Speakers Bureau of: Sanofi

P32 ASSESSING THE QUALITY, RELIABILITY AND READABILITY OF ONLINE HEALTH INFORMATION REGARDING OSTEARTHRITIS

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Problem Statement: Osteoarthritis is a common, painful condition affecting many Australians and accounts for many visits to health care professionals. Patients frequently access the internet to increase their knowledge about the condition. We assessed the quality, reliability and readability of online sites relating to osteoarthritis. Methods: The search phrase ‘osteoarthritis’ was used with three commonly accessed internet search engines (Google, Bing and Yahoo) to identify websites. The first 25 hits (excluding duplicates and excluded websites) for each search were assessed for quality using the DISCERN instrument (scores 15-80 points), reliability using the JAMA benchmarks (assessing authorship, attribution of references, currency [date of posted content] and disclosure of conflict of interest) and readability using the Gunning Fog Index (ideal score 7-8). Results: There was significant concordance between the hits returned from each search engine with 30 unique websites identified. The average DISCERN score was 45.8 (SD 10.5), and ranged from 25-67. Websites that appeared earlier in searches did not have higher DISCERN scores (Pearson correlation +0.15). Currency was present in 76.7%, appropriate authorship in 33.3%, attribution of references in 30% and disclosure of interest in only 3.3% of websites. The average readability of the websites was 10.4 (SD 3.3) using the FOG index. Conclusion: The overall quality of online health information relating to osteoarthritis, assessed by the DISCERN instrument, is fair. Reliability as measured by the JAMA benchmarks was of variable quality. Whilst the majority of websites provided dates of posted and updated content, the presence of remaining benchmarks was poor. The readability of websites is higher than recommended for near-universal understanding, but acceptable for most Australians. This assessment highlights the need for clinicians to provide patients with alternative sources of high quality information regarding osteoarthritis or be able to direct them to websites with high quality information.

Disclosure of Interest: None declared.

P33 A COMPARATIVE EVALUATION BETWEEN DISEASE ACTIVITY IN OSTEOARTHRITIS AND SERUM BIOMARKER CARTILAGE OLYGOMERIC MATRIX PROTEIN (COMP) IN PATIENTS WITH KNEE OSTEOARTHRITIS REFERRED TO THE RHEUMATOLOGY CLINIC OF SAYYAD HOSPITAL IN GORGAN IN YEARS 2013-2015

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Problem Statement: Osteoarthritis, a kind of inflammatory arthritis, is the most common cause of disability in the elderly[1]. Osteoarthritis can occur in any joint but most often occurs in the neck vertebrae, hips, knees or hands[2]. Today, radiological methods are used to diagnose Osteoarthritis but these method are insensitive in the early stages of the disease and in assessing response to treatment. However, with the recent onset of successful treatments for rheumatoid arthritis and osteoarthritis, it becomes important to identify prognostic factors that can predict the evolution of arthritis to slow down progression of the disease[3]. In addition, there are no reliable biomarkers to predict worsening of osteoarthritis. Serial measurement of COMP biomarker (biological marker of cartilage degradation) not only can be used for early detection and prevention of worsening disease but also to evaluate response to therapy[4]. One of the most common prognostic factor of disease is evaluation of disease activity which is a set of indexes, measures and is used in clinical trials on OA. Methods: In this cross-sectional study, 90 patients with knee osteoarthritis based on ACR criteria were evaluated. We took 10cc of median cubital vein blood sample from each patient and the Serum COMP level was measured by ELISA. To determine the severity of the
disease, according to Kellgren-Lawrence criteria\(^5\), AP and oblique X-ray images of the knee joint was prepared. **Results:** 56.6% of patients with osteoarthritis were under 55 years old and the mean age was 58.19±11.79. Most patients had Grade II of disease severity, based on kellgren Lawrence (46.7%). COMP average has been 1.36 ± 2368.21 in all patients, the amount of biomarker was higher in grades 3 and 4. By ANOVA test we observed a significant correlation between a COMP biomarker and severity of disease (PV = 0.008,). Also, COMP was higher in patients whom hadn’t taken any treatment (steroids and analgesics). We didn’t find any association between serum level of COMP and duration of disease, BMI (PV = 0.38), sex, race, age. BMI didn’t had any association with severity of disease, too (PV = 0.412).

**Conclusion:** COMP is a promising biomarker for disease activity in OA, making it a potential therapeutic target. According to the study, serum COMP can be used to predict severity of the disease and a prognostic marker to diagnose. Serial measurements of COMP biomarker can be used for early diagnosis, prevention of worsening the disease and evaluation of response to therapy.

INDUSTRY

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in Bone, Muscle & Joint Diseases


Dosage: 20 mcg sc once daily. Refer to User Manual for proper injection technique.


Adverse Reactions: Leg cramps, muscle spasms, nausea, hyperuricaemia, local reaction and injection site. Allergic events soon after injection. Refer to PI for others. There has been a report of metastatic osteosarcoma with subsequent fatal outcome in a 72 year old woman with osteoporosis and low back pain who had received teriparatide for 14 months prior to presentation. Causality cannot be established on the basis of this single case and a surveillance program continues. Osteosarcoma occurs at a rate of approximately 4 in one million per year (1 in 250,000 per year) in the general population over 60 years old and at the same rate in women over the age of 70 years. At present it is not known if humans treated with FORTEO have an increased risk of osteosarcoma. Based on PI last amended: 2 November 2015.


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MSD
Give your patients the freedom that comes with XELJANZ®

(tofacitinib citrate)

*Freedom from injections or infusions:

PBS information: Authority required for the treatment of adults with severe active rheumatoid arthritis. Refer to the PBS Schedule for full authority information.

BEFORE PRESCRIBING, PLEASE REVIEW FULL PRODUCT INFORMATION AVAILABLE FROM WWW.XELJANZ.COM.AU

XELJANZ® tofacitinib 5 mg (as citrate) tablets. Indication: Treatment of the signs and symptoms of moderate to severe active rheumatoid arthritis in adults who have had an inadequate response or are intolerant to methotrexate. Use alone or in combination with nonbiological DMARDs, including methotrexate. Therapy with XELJANZ should be initiated and monitored by a rheumatologist or specialist physician with expertise in the management of rheumatoid arthritis. Contraindications: Hypersensitivity to tofacitinib citrate or to any of the excipients; concomitant biological DMARDs or other potent immunosuppressive agents such as azathioprine and cyclosporine; severe hepatic impairment. Precautions: Serious infections including pneumonia, cellulitis, urinary tract infection, diverticulitis and appendicitis; other bacterial, mycobacterial, fungal and opportunistic infections, including tuberculosis, candidiasis, pneumocystis, multidrug-resistant tuberculosis, cytomegalovirus and BK virus infections (see full PI for others); viral reactivation; malignancy and lymphoproliferative disorder; non-melanoma and melanoma skin cancer; cardiovascular; gastrointestinal perforations; live vaccinations; chronic and interstitial lung disease; use in renal transplant patients; use in Asian patients; use in pregnancy (Category D), contraception; use in lactation; use in the elderly; use in diabetic patients; renal or hepatic impairment; lymphopenia; neutropenia; low hemoglobin; hyperlipidemia; liver enzyme elevations; interactions: ketoconazole, fluconazole, rifampicin. See full PI for details.

Adverse Effects: 5 mg twice daily dose.

Common:
- upper respiratory tract infections, nasopharyngitis, pneumonia, sinusitis, pharyngitis, bronchitis, anaemia, leucopenia, hepatic enzyme increased, dyslipidaemia, headache, dizziness, hyperension, dyspnoea, diarrhoea, nausea, dryness, upper abdominal pain, vomiting, constipation, gastritis, gastroenteritis, rash, rheumatoid arthritis, arthralgia, muscular/skeletal pain, fatigue, peripheral oedema, pyrexia, insomnia. See full PI for details.

Dosage and Administration: 5 mg twice daily as monotherapy or in combination with methotrexate or other nonbiological DMARDs. Dose modifications. See full PI for details. V10217.

Thursday, August 31, 2017

17:00-18:00 Industry Symposium: Adherence vs persistence in RA. Implications for clinical practice
Hall A
Supported by an educational/research donation by Roche

Chairperson: Graeme Jones, Australia

17:00 Welcome and introductions
Graeme Jones, Australia

17:10 Adherence to therapy in RA and implications for the use of biologics
Mark Genovese, USA

17:35 The persistence on biologics for RA in the Australian population
Graeme Jones, Australia

17:50 Q&A

Friday, September 1, 2017

11:25-12:25 Industry Symposium: What is “shared decision” in T2T approach and managing RA patients beyond the joints?
Hall A
Supported by Lilly

Chairperson: Stephen Hall, Australia

11:25 Beyond the joints: Managing co-morbidities of patients with inflammatory arthritis
Boulos Haraoui, Canada

11:45 What do you mean by “shared decision” when considering a T2T approach in the management of inflammatory rheumatic disorders?
Maxime Dougados, France

12:05 Panel Discussion

12:25 Close

16:00-17:00 Industry Symposium: Psoriatic arthritis: Insights from modern imaging on pathogenesis and trials
Hall A
Supported by Pfizer

Chairperson: Paul Bird, Australia

16:00 Presentation
Philip Conaghan, UK

16:45 Questions and Answers
Superior. *1

*ACTEMRA IV superior to Humira® (adalimumab) as RA monotherapy; mean change in DAS28 at 24 weeks in methotrexate intolerant/inappropriate patients.

Convenient †2–4

† At home subcutaneous (SC) administration compared with monthly IV infusions.
Saturday, September 2, 2017

08:00-09:00  Industry Breakfast Symposium: Management of PsA and AS: Looking beyond the joints  
                  Supported by Novartis  
Chairperson:  Paul Bird, Australia  
08:00  What is the true burden of disease for patients?  
        Maxime Dougados, France  
08:25  The role of imaging in diagnosis and monitoring  
        Paul Bird, Australia  
08:45  Discussion  

12:30-13:30  Industry Symposium: Optimising treatment in poor prognosis early RA  
                          Supported by BMS  
12:30  Impact of antibodies in early RA  
        • Pathway to disease progression in the ACPA+ RA patients  
        • Clinical presentation incl. imaging  
        • Pathology of ACPA+ disease  
        Philip Conaghan, UK  
12:55  Treating the early rapidly progressing RA patient  
        • Clinical trial data  
        • Real world data  
        • Case studies  
        Graeme Jones, Australia  
13:20  Questions  

Sunday, September 3, 2017

07:45-08:30  Industry Breakfast Symposium: Hyaluronic acid  
                           Supported by Sanofi  
Chairperson:  Johanne Martel-Pelletier, Canada  
07:45  Hyaluronic acid in osteoarthritis treatment: A Canadian consensus  
        Jean-Pierre Raynauld, Canada  
08:00  Toward personalized medicine with hyaluronic acid treatment of knee osteoarthritis  
        Jean-Pierre Pelletier, Canada  
08:15  Discussion
A DIFFERENT WAY TO MANAGE AS AND PsA*1-3

COSENTYX® (secukinumab) is the first IL-17A inhibitor registered for use in adult patients with active AS or active PsA (following IR to DMARD)\(^1\)

COSENTYX OFFERS YOUR PATIENTS SUSTAINED IMPROVEMENTS IN DISEASE ACTIVITY.4,5,11

IN BIOLOGIC NAÏVE® AS PATIENTS:

8 out of 10 had achieved an ASAS20 response at Week 52\(^0\) and Week 104\(^0\) with Cosentyx 150 mg

IN BIOLOGIC NAÏVE® PsA PATIENTS:

8 out of 10 had achieved an ACR20 response at Week 52\(^0\) with Cosentyx 150 mg\(^6\)

\(^*\)Pre-specified sub-group analysis. \(^\circ\)No placebo at this time point. PsA, NRI results; AS, observed results. \(^\circ\)Data presented in line with recommended dosage. \(^1\)

Primary efficacy endpoint was ASAS20 response rate at Week 16. The primary endpoint was met. Data up to Week 104 are currently available.4 FUTURE 2 is an ongoing, 5-year, randomised, double-blind, placebo-controlled, phase 3 study of subcutaneous Cosentyx in patients with active AS (N = 219). Primary efficacy endpoint was ASAS20 response rate at Week 16. The primary endpoint was met. Data up to Week 104 are currently available.4

FUTURE 2 is an ongoing, 5-year, randomised, double-blind, placebo-controlled, phase 3 study of subcutaneous Cosentyx in patients with active PsA (N = 397). Primary endpoint was ACR20 response rate at Week 24. The primary endpoint was met. Data up to Week 52 are currently available.5

PBS Information: Section 85 Authority Required for the treatment of severe chronic plaque psoriasis, active ankylosing spondylitis and severe psoriatic arthritis. Refer to PBS Schedule for full Authority information.


COSENTYX\(^\circ\) (secukinumab)

**Indication:** Treatment of moderate to severe plaque psoriasis in adult patients who are candidates for systemic therapy or phototherapy. Treatment of adult patients with active psoriatic arthritis when the response to previous disease-modifying anti-rheumatic drug (DMARD) therapy has been inadequate. Treatment of adult patients with active ankylosing spondylitis. **Dosage and administration:** Plaque psoriasis: The recommended dose is 150 mg by subcutaneous injection with initial dosing at weeks 0, 1, 2 and 3, followed by monthly maintenance dosing starting at week 4. Each 300 mg dose is given as two subcutaneous injections of 150 mg. Psoriatic arthritis: The recommended dose is 150 mg by subcutaneous injection with initial dosing at Weeks 0, 1, 2 and 3, followed by monthly maintenance dosing starting at Week 4. For patients who are anti-TNFa inadequate responders or patients with concomitant moderate to severe psoriatic plaque psoriasis, the recommended dose is 300 mg by subcutaneous injection with initial dosing at Weeks 0, 1, 2 and 3, followed by monthly maintenance dosing starting at Week 4. Each 300 mg dose is given as two subcutaneous injections of 150 mg. Ankylosing spondylitis: The recommended dose is 150 mg by subcutaneous injection with initial dosing at Weeks 0, 1, 2 and 3, followed by monthly maintenance dosing starting at Week 4.

**MEASURE 2**

**MANAGE**

IN BIOLOGIC NAÏVE\(^\circ\) PATIENTS:

8 out of 10 had achieved an ACR20 response at Week 52\(^0\) with Cosentyx 150 mg

IN BIOLOGIC NAÏVE\(^\circ\) PsA PATIENTS:

8 out of 10 had achieved an ASAS20 response at Week 52\(^0\) and Week 104\(^0\) with Cosentyx 150 mg

\(^0\)Pre-specified sub-group analysis. \(^\circ\)No placebo at this time point. PsA, NRI results; AS, observed results. \(^\circ\)Data presented in line with recommended dosage. \(^1\)

Primary efficacy endpoint was ASAS20 response rate at Week 16. The primary endpoint was met. Data up to Week 104 are currently available.4

FUTURE 2 is an ongoing, 5-year, randomised, double-blind, placebo-controlled, phase 3 study of subcutaneous Cosentyx in patients with active AS (N = 219). Primary efficacy endpoint was ASAS20 response rate at Week 16. The primary endpoint was met. Data up to Week 104 are currently available.4

FUTURE 2 is an ongoing, 5-year, randomised, double-blind, placebo-controlled, phase 3 study of subcutaneous Cosentyx in patients with active PsA (N = 397). Primary endpoint was ACR20 response rate at Week 24. The primary endpoint was met. Data up to Week 52 are currently available.5

**Abbreviations:** ACR, American College of Rheumatology; AS, ankylosing spondylitis; ASAS, Assessment of Spondyloarthritis International Society; DMARD, disease modifying anti-rheumatic drug; IL-17A, interleukin 17-A; IR, inadequate response; NRI, non-response imputation; PsA, psoriatic arthritis


Company Profiles

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www.abbvie.com.au

AbbVie is a global biopharmaceutical company. The company's mission is to use its unique approach to innovation to develop advanced therapies that address some of the world's most complex diseases. We employ more than 280 people locally with a focus on Immunology, Liver Disease, Neuroscience and Oncology. For further information please visit the website.

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Novartis
www.novartis.com

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Pfizer
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ACT FAST

CHANGE THE COURSE OF EARLY, RAPIDLY PROGRESSING RA

ORENCIA®
(abatacept)

Indications: ORENCIA® in combination with methotrexate (MTX) is indicated for the treatment of moderate to severe active rheumatoid arthritis in adult patients who have had an insufficient response or intolerance to other disease-modifying anti-rheumatic drugs (DMARDs), such as MTX or tumour necrosis factor (TNF) blocking agents. A reduction in the progression of joint damage and improvement in physical function have been demonstrated during combination treatment with ORENCIA® and MTX. ORENCIA® in combination with MTX is also indicated in the treatment of severe, active and progressive rheumatoid arthritis in adults not previously treated with MTX. ORENCIA® is indicated for reducing signs and symptoms in paediatric patients 8 years of age and older with moderately to severely active polyarticular juvenile idiopathic arthritis who have had an inadequate response to one or more DMARDs. ORENCIA® may be used as monotherapy or concomitantly with MTX. (There is no clinical trial data for the use of ORENCIA® subcutaneous formulation in children, therefore its use in children cannot be recommended).

Contraindications: Patients with known hypersensitivity to ORENCIA® or any of its components; patients with severe infections such as sepsis, abscesses, tuberculosis and opportunistic infections.

Precautions: ORENCIA® should not be administered concurrently with other biological DMARDs; hypersensitivity with any injectable protein; infections including screening for tuberculosis and viral hepatitis; infusion-related reactions; malignancies; immunisation; blood glucose monitoring; pregnancy (Category C); lactation; elderly; COPD; patients on controlled sodium diet. 

Adverse Effects: Upper and lower respiratory tract infection; urinary tract infection; herpes infections; rhinitis; leukopenia; headache; dizziness; paraesthesia; conjunctivitis; hypertension; flushing; cough; abdominal pain; diarrhoea; nausea; dyspepsia; mouth ulceration; aphthous stomatitis; rash; alopecia; pain in extremity; fatigue; asthenia; blood pressure increased; abnormal liver function tests; others, see full Product Information.

Dosage and Administration: Intravenous (IV): 30-minute infusion at 0, 2 and 4 weeks, then every 4 weeks thereafter with weight-adjusted dosing: Adults: < 60 kg, 500 mg; 60 to 100 kg, 750 mg; > 100 kg, 1 gram. In paediatric patients: < 75 kg, 10 mg/kg; > 75 kg, dose as per adult regimen, max 1 g. Subcutaneous (SC): weekly dose of 125 mg regardless of weight and may be initiated with or without an IV loading dose. Patients switching from ORENCIA® IV to SC should administer the first SC dose instead of the next scheduled monthly IV dose.

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38th European Workshop for Rheumatology Research
February 22 - 24, 2018 – Genève, Switzerland

19th EFORT Congress
Barcelona, Spain: 30 May - 01 June 2018

5th International Congress on Controversies in Rheumatology & Autoimmunity
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