New concepts in osteoarthritis

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Welcome to the 2019 Clinical and Experimental Rheumatology supplement concerning contemporary topics in rheumatology. Previous volumes include:

1999 - Combination DMARD therapy in rheumatoid arthritis
2001 - Controversies in COX-2 inhibitor therapy
2002 - Innovative therapies for spondyloarthritides
2003 - Early arthritis
2004 - Benefit/risk of new drugs for rheumatoid arthritis
2005 - Quantitative clinical assessment of rheumatic diseases
2006 - Remission in rheumatic diseases
2007 - Quality of care in rheumatology: opportunities and challenges
2008 - Mortality in rheumatic diseases
2009 - Rheumatoid arthritis and ankylosing spondylitis: similarities and differences
2010 - Methotrexate in rheumatic diseases
2011 - Low-dose glucocorticoids in rheumatic diseases
2012 - Treat to target in rheumatic diseases
2013 - Possible discontinuation of therapies in rheumatic diseases
2014 - Optimising assessment in clinical trials, clinical research and clinical care
2015 - Psoriatic arthritis.
2016 - Information technology in rheumatology
2017 - Pain in rheumatic diseases
2018 - Update on imaging in rheumatic diseases

This year marks the 20th anniversary of the "Contemporary Topics in Rheumatology" supplement, and we decided to mark this special occasion by focusing on a rheumatic disease that often has been underrated by the rheumatology community despite its severity and high prevalence, which appears to be increasing even beyond what can be explained by an aging population and obesity epidemic (Wallace IJ, Worthington S, Felson D *et al*. Knee osteoarthritis has doubled in prevalence since the mid-20th century. *Proc Natl Acad Sci USA* 2017; 114: 9332-6). Osteoarthritis is the most common form of arthritis, and a major source of chronic pain worldwide.

In this volume, "New concepts in osteoarthritis", the focus is on new clinical concepts that have emerged from use of patient questionnaires in clinical trials and routine care, and the concept of pain as a distinct subject for research rather than only as a consequence of disease. New basic science concepts have emerged from recognition of metabolic changes and low level inflammation in OA joints, indicating greater complexity of pathophysiologic mechanisms than previously recognised. Some of the important developments over the last 30 years are presented by world class authorities in 4 sections:

Section 1: Epidemiology. These articles revise a traditional view of OA as a relatively mild condition in most patients, with evidence of severe disease burden similar to RA, including increased mortality rates, and worthy of similar research support and public health advocacy. Five articles present "OA as a serious disease", "OA is as severe as RA: documentation over 40 years", "Patient questionnaires and low socioeconomic status in osteoarthritis: challenges to a 'biomedical model' and value of a complementary 'biopsychosocial model'", "Knee and hip osteoarthritis as predictors of premature death: a review of the evidence" and "Public health interventions for OA - Updates on the Osteoarthritis Action Alliance's Efforts to Address the 2010 OA Public Health Agenda Recommendations".

Section 2: Pathophysiology. These articles discuss new insights concerning epigenetic mechanisms in osteoarthritis, role of innate immunity in OA pathogenesis, and the heterogeneity of OA, which may have important ramifications for the future of clinical trials. Four articles present: "The function of microRNAs in cartilage and osteoarthritis", "Danger signals and inflammaging in osteoarthritis", "Innate inflammation and synovial macrophages in osteoarthritis pathophysiology," and "Phenotypes of osteoarthritis - current state and future implications".

Section 3: Measurement. These articles address new concepts in OA biomarkers, MRI imaging, pain susceptibility phenotypes, and patient questionnaires in OA, revising a traditional view that abnormal laboratory tests indicate substantially more severe pathology than pain and functional disability, with recognition that attention to pain and function may be complementary to analysis of biomarkers and joint structure biology in prevention and development of possible new treatments for OA. Four articles present: "Biochemical markers in osteoarthritis with lessons learned from osteoporosis", "MRI assessment of knee osteoarthritis – current and developing new concepts and techniques", "Identifying pain susceptibility phenotypes in knee osteoarthritis", "Patient questionnaires in osteoarthritis: what patients teach doctors about their OA on a multidimensional health assessment questionnaire (MDHAQ) in clinical trials and clinical care".

Section 4: Management. These articles address current and future physical therapy management, the strong placebo effect in OA, traditional and new pharmacological analgesic therapies for OA pain, disease modifying drugs (DMOADs) in early development, and DMOADs in Phase 2 and 3 development. Five articles present: "Physical therapy for patients with knee and hip osteoarthritis – supervised, active treatment is current best practice," "The strong placebo effect in OA", "Treating osteoarthritis pain: recent approaches using pharmacological therapies", "The elusive DMOAD; Aggrecanase inhibition in OA", and "Disease modification in osteoarthritis: are we there yet?"

Our goal is that this volume will stimulate further interest in OA research and management in the rheumatology community, as previous supplements in this series may have stimulated developments in rheumatology such as "early arthritis", "quality measures", "treat-to-target", "new concepts in pain", and others.

We thank the authors of the 14 articles not written by ourselves, who gave much time and thought to provide high-quality reviews, which maintain the high standards of previous volumes in this series. We hope that readers will find this volume of interest and value, and that it will encourage OA research in the rheumatology community, pharmaceutical companies, and government-supported programmes. The authors and guest editors welcome critique and comments.

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