



WORKSHOP
Can we Prevent Post-Traumatic Osteoarthritis: Where are we now, and where are we going?

Organizers:
Deborah Mason, PhD

Speakers:
Fiona Watt, PhD
Deborah Mason, PhD
Christian Lattermann, MD

WORKSHOP: Can we prevent post-traumatic osteoarthritis: where are we now, and where are we going?

Organizer(s): Deborah Mason, PhD

SPEAKERS:

Fiona Watt, MD, PhD

Deborah Mason, PhD

Christian Lattermann, MD

Moderator: Martin Englund, MD, PhD

OVERVIEW: Osteoarthritis is often diagnosed after structural joint damage, and treatments to prevent disease progression or restore joint structures remain elusive. A pressing need is to address OA following joint injury. Such post-traumatic OA (PTOA), accounts for 12% of OA sufferers, likely higher at younger age. Surgical procedures after acute injuries restore mobility and function but do not prevent PTOA. This opens a window for adjunct treatments at the time of injury, which could ultimately prevent the development of PTOA. To achieve this aim, therapeutic drug candidates need to be identified and successfully translated into clinical trials. This workshop will report the first international consensus on the conduct of interventional studies following acute knee joint trauma, review potential targets identified from preclinical models and discuss early lessons from small interventional trials. Progress and challenges to the successful study and treatment of PTOA will be discussed.

Why is the design of interventional trials following acute knee injury important for post-traumatic OA?

Fiona Watt, MD, PhD , Kennedy Institute, UK

Dr Fiona Watt is a rheumatologist who co-led an international expert working group on considerations for the design and conduct of interventional studies following acute knee injury¹. She will overview this area of unmet need and report on the findings from this international consensus. An evidence review of past trials revealed that these were generally small, mostly involved surgical interventions and that duration and outcomes varied widely. The group considered and made recommendations on the careful definition of eligibility criteria (including the classification of injury and participant age), selection and timing of outcomes, and definition of the types and timing of intervention for PTOA intervention trials. The consideration of the appropriate time-window after injury was highlighted as likely particular to the intervention target. Areas of need for further research were identified and will be highlighted.

1. F.E. Watt, N. Corp, S.R. Kingsbury, R. Frobell, M. Englund, D.T. Felson, M. Levesque, S. Majumdar, C. Wilson, D.J. Beard, L.S. Lohmander, V.B. Kraus, F. Roemer, P.G. Conaghan, D.J. Mason. Towards prevention of post-traumatic osteoarthritis: report from an international expert working group on considerations for the design and conduct of interventional studies following acute knee injury. *Osteoarthritis and Cartilage*. 2019 (27); 23-33

Therapeutic targets in post-traumatic OA: translation from laboratory to clinic

Deborah Mason, BSc, PhD, Arthritis Research UK Biomechanics and Bioengineering Centre, Cardiff University, UK

Dr Deborah Mason is a basic scientist who has developed cell, animal and human models of mechanically induced osteoarthritis. These models have revealed various molecules that could be therapeutically targeted to prevent post-traumatic OA (PTOA). She will review new potential drug targets that have been identified from preclinical models and discuss the challenges associated with translating drugs to human trials on prevention of PTOA. There are surprisingly few preclinical studies that test whether agents given acutely at the time of joint injury prevent subsequent OA progression. The efficacy of drugs used in such studies are often difficult to compare as they often use different preclinical models of PTOA, are administered at different times after injury, and use different analysis methods to report efficacy. However, there is good evidence that a number of molecular targets prevent disease progression in animal models and may offer a realistic opportunity to prevent PTOA in humans.

Interventional trials in the ACL injury model and how they translate to the clinical situation?

Christian Lattermann, MD, Harvard Medical School

Dr Christian Lattermann is an orthopaedic surgeon at the Brigham and Women's Hospital in Boston. He is Chief of Sports Medicine and Director of the Cartilage Repair Center. He will describe the challenges in currently ongoing randomized clinical trials in the area of post-traumatic OA (PTOA). He will also provide an update on currently ongoing trials in this area. Recent trials designed to determine the role of inflammation in driving joint degeneration and pain after ACL injury, have suggested a greater role for anti-inflammatory agents in the early treatment of post-traumatic chondral injury that may have potential to prevent or modify the development of PTOA.

Panel discussion led by Martin Englund MD, PhD, Lund University, Sweden

The workshop will finish with a discussion around challenges and knowledge gaps in this area. The panel will address questions from the audience.