

Potential Role of IL-1 β in Synovial Fluid in Modulating Multiple Joint Tissue Pathologies Leading to Inflammation and Accelerating Cartilage Degeneration

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Abstract : Osteoarthritis (OA) is associated with multiple and overlapping aetiologies. IL-1 β is produced by stressed tissue and known to aggravate disease pathologies. We selected 10 patients with elevated IL-1 β in their synovial fluids (SF). We hypothesized IL-1 β as nodal-point connecting different pathologies. IL-1 β was higher in all meniscal tear (MT) patients perhaps as the earliest response to injury. Since MT above age of 30 leads to OA in less than 5 years, it is attributed that IL-1 β modulates OA pathology. Among all bilateral OA patients, an interesting case operated for Total-Knee-Replacement revealed differential cartilage degeneration demonstrating strong association with higher IL-1 β . Symptoms like acute-pain, effusion and redness were correlated with higher IL-1 β and NO (Nitric-oxide). However, higher IL-1 β was also found without typical-inflammation characterized by infiltration of neutrophils and macrophages. Cultured synoviocytes responded to IL-1 β by releasing NO. In conclusion, IL-1 β in SF acquires central position influencing different OA pathologies and aetiologies.

Keywords : IL-1 β , meniscal tear, osteoarthritis, synovial fluid

Conference Title : ICOOMD 2014 : International Conference on Osteoporosis, Osteoarthritis and Musculoskeletal Diseases

Conference Location : London, United Kingdom

Conference Dates : May 26-27, 2014