

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

**Authors :** Priya Kulkarni, Soumya Koppikar, Datta Shinde, Shantanu Deshpande, Narendrakumar Wagh, Abhay Harsulkar

**Abstract :** Osteoarthritis (OA) is associated with multiple and overlapping aetiologies. IL-1 $\beta$  is produced by stressed tissue and known to aggravate disease pathologies. We selected 10 patients with elevated IL-1 $\beta$  in their synovial fluids (SF). We hypothesized IL-1 $\beta$  as nodal-point connecting different pathologies. IL-1 $\beta$  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 $\beta$  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 $\beta$ . Symptoms like acute-pain, effusion and redness were correlated with higher IL-1 $\beta$  and NO (Nitric-oxide). However, higher IL-1 $\beta$  was also found without typical-inflammation characterized by infiltration of neutrophils and macrophages. Cultured synoviocytes responded to IL-1 $\beta$  by releasing NO. In conclusion, IL-1 $\beta$  in SF acquires central position influencing different OA pathologies and aetiologies.

**Keywords :** IL-1 $\beta$ , meniscal tear, osteoarthritis, synovial fluid

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