Rheostructural Study of Synovial Fluid in Patients with Osteoarthritis

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Osteoarthritis (OA) is the most common joint disorder associated with aging, affecting the quality of life of millions of people worldwide. OA is a disease characterized by the breakdown of articular cartilage, resulting in joint pain and stiffness. The frequency of OA increases with advancing age.

Rheological properties such as viscosity and viscoelasticity of synovial fluid are of interest because of their significance in the joint lubrication. In a healthy joint, synovial fluid is highly viscous. However, in the diseased joint, synovial fluid becomes less viscous and therefore less effective in lubrication. The loss of viscoelasticity is also directly related to the severity of OA.

A comprehensive study of rheo-structural characterization of synovial fluid in OA is still lacking. Therefore, a thorough exposition of the rheo-structural characterization of the synovial fluid in OA is necessary to further the understanding of its role in joint lubrication.

The purpose of this study is to determine a complete rheo-structural characterization of synovial fluid in patients with various degrees of OA to further the understanding of its role in joint lubrication, and to determine whether it correlates with radiographic and/or laboratory findings. Synovial fluid will be aspirated from patients who are recommended for total knee arthroplasty (TKA) or knee arthroscopy. This study will provide a deeper understanding of rheological behaviour of synovial fluid in patients with OA. It may become useful as a diagnostic aid for OA.