

Evaluation of Osteoprotegrin (OPG) and Tumor Necrosis Factor A (TNF-A) Changes in Synovial Fluid and Serum in Dogs with Osteoarthritis; An Experimental Study

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Abstract : Osteoarthritis (OA) is a progressive and degenerative condition of the articular cartilage and other joints' structures. It is essential to diagnose this condition as early as possible. The present research was performed to measure the Osteoprotegrin (OPG) and Tumor Necrosis Factor α (TNF- α) in synovial fluid and blood serum of dogs with surgically transected cruciate ligament as a model of OA, to evaluate if measuring of these parameters can be used as a way of early diagnosis of OA. In the present study, four mature, clinically healthy dogs were selected to investigate the effect of experimental OA, on OPG and TNF- α as a way of early detection of OA. OPG and TNF- α were measured in synovial fluid and blood serum on days 0, 14, 28, 90 and 180 after surgical transaction of cranial cruciate ligament in one stifle joint. Statistical analysis of the results showed that there was a significant increase in TNF- α in both synovial fluid and blood serum. OPG showed a decrease two weeks after OA induction. However, it fluctuated afterward. In conclusion, TNF- α could be used in both synovial fluid and blood serum as a way of early detection of OA; however, further research still needs to be conducted on OPG values in OA detection.

Keywords : osteoarthritis, osteoprotegrin, tumor necrosis factor α , synovial fluid, serum, dog

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