

Synovial fluid Parameters from Osteoarthritic Equine Joints Treated with Intra-articular Equine Dental Stem Cells or Control Solution.

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Major: Animal Sciences

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Intra-articular use of dental pulp stem cells may have the potential to decrease lameness and joint inflammation in naturally occurring osteoarthritis in horses. The goal of this project was to investigate the effects of dental pulp derived stem cell therapy on the immune and inflammatory response, specifically cytokine profiles, when administered intra-articular to horses with osteoarthritis. Twenty horses were randomly assigned to receive 1ml of control solution (n=10) or 10 million cells of dental pulp (n=10), exercised on a treadmill, and synovial fluid was evaluated before and at day 14 after injection for cytology and IL-1 β , IL-1 receptor antagonist, IL-6, and IL-10 [Genorise ELISA kit]. Data was analyzed by repeated measure ANOVA for time and treatment and Wilcoxon rank post-test. Statistical significance was set at P < 0.05. Synovial fluid WBC count, protein and cell differentials at Day 0 or 14 did not differ between treated and control and synovial fluid was noted as within acceptable limits with counts > 1000 cells/ul were only seen in samples with blood contamination. The IL-10 percent change from baseline differed and increased in the control joints and decreased in the treated joints. (P < 0.03) The control synovial fluid increased in IL-6 (p < 0.03) and IL-6 percent change from baseline increased in the control synovial fluid and decreased in the treated synovial fluid. (P < 0.03) No significant difference was noted between groups for IL-1 β and IL-1 receptor antagonist and values were low. Adverse effects were not observed. Intra-articular injection of dental pulp therapy was not pro-inflammatory in the synovial fluid after 14 days and demonstrated persistent anti-inflammatory and immunologic effects as measured by cytokine analysis. Intra-articular administration of dental pulp derived stem cell therapy can be considered a safe treatment option for equine osteoarthritis, with the potential for disease modifying effects.