

Oral presentations

Clinical efficacy of intra-articular injections of autologous mesenchymal stem cells in moderate to severe osteoarthritis (OA): a case series of 19 dogs evaluated using both LOAD and CBPI owner questionnaires

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OBJECTIVES

To evaluate the clinical efficacy of adipose-derived mesenchymal stem cells (adMSCs) in dogs with OA, using

two validated pet-owner questionnaires, LOAD (Liverpool Osteoarthritis in Dogs) and CBPI (Canine Brief Pain Inventory) to assess pain and mobility levels before and after intra-articular (IA) stem cell injections.

METHODS

Culture-expanded adMSC injections were prepared for a cohort of dogs, each with a documented history of moderate to severe OA inadequately controlled by conventional therapy. All dogs were treated with an IA injection of autologous adMSCs (>2.5 million/joint) into each affected joint. LOAD and CBPI questionnaires were completed by each owner before stem cell treatment and 3 months after treatment.

RESULTS

Nineteen dogs were included. CBPI data showed highly significant reductions in pain scores after treatment with adMSC injections (mean score before injection=43, mean score 3 months after injection=8; $p<0.001$).

Treatment success criteria were predefined in accordance with published CBPI data as a reduction ≥ 1 in Pain Intensity Score and ≥ 2 in Pain Severity Score. Based on these criteria, 18/19 of dogs met the definition of treatment success, each demonstrating a clinically significant reduction in their pain scores.

LOAD scores mirrored the CBPI data for all 19 dogs and demonstrated significant improvements in mobility (LOAD before injection of adMSCs=20, LOAD 12 weeks after adMSC injection=7.03; $p<0.001$).

STATEMENT (CONCLUSIONS)

Intra-articular injections of adMSCs demonstrated significant clinical efficacy in dogs with moderate-severe OA, confirmed using both CBPI and LOAD questionnaires.

Direction of travel can influence canine gait characteristics

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OBJECTIVES

To investigate the effect of direction of travel on measurements of peak vertical force (PVF) and vertical impulse (VI) obtained using a Tekscan walkway system.

METHODS

Following acclimatisation, recordings were obtained for six healthy dogs walking twice in each direction along the walkway. PVF and VI measurements were normalised and used to calculate left:right symmetry ratios for forelimb and hindlimb loading in each travel direction and for all recordings.

RESULTS

Mean walking speed was 1.2 ± 0.14 m/s. Mean body mass was 25 ± 5 kg. No gross evidence of pulling to left or right was observed. Mean symmetry ratios for PVF and VI varied consistently but insignificantly with direction of travel. However, individual variation in symmetry ratios ranged from ± 0.4 –14% for PVF and ± 0.4 –11% for VI. Forelimb to hindlimb ratios of both PVF and VI varied by ± 3 –4% with direction of travel.