April 12, 2019

Radiosynoviorthesis using Sn-117m colloid to treat canine elbow osteoarthritis demonstrates efficacy and safety

AIM/INTRODUCTION

Homogeneous Sn-117m colloid (HTC) was studied in order to determine the safety and efficacy of RSO injections for the treatment of mild to moderately, and moderately severe canine osteoarthritis (OA). As a result of these trials, (1) HTC is being commercialized in the US as a treatment for osteoarthritis (OA) in pet dogs and, (2) human OA using ascorbic homogeneous Sn-117m colloid (AHTC) will commence in Canada in 2019.

MATERIALS AND METHODS

Study 1 prospectively enrolled 44 dogs (44 elbows) with mild-moderate elbow OA into three randomized dosing arms, and Study 2 prospectively enrolled 15 dogs (27 elbows) with moderately severe elbow OA into a single dose. All dogs were followed up to 12 months. Therapeutic success by canine brief pain inventory (cBPI) was defined as either (1) improvement of $\geq$1 for pain severity score (PSS) AND $\geq$2 for pain interference score (PIS), or (2) improvement of $\geq$1 for PSS OR $\geq$2 for PIS. Therapeutic success by clinician's lameness examination was defined as significantly improved p values between the two assessment timepoints. In Study 1 a force plate analysis was also evaluated with therapeutic success defined as improvement of $\geq$5% at any timepoint in the peak vertical force (PF) or the mean vertical impulse (IMP). Safety was assessed by analysis of CBC and blood chemistry, joint fluid, UA, and by owner and clinician assessment.

RESULTS

Study 1 per protocol 34 elbows demonstrated a larger success rate of the three assessments in the medium dose group which was selected as the only dose used for Study 2. Study 2 per protocol 25 elbows showed therapeutic improvement in both assessments. cBPI success using PSS AND PIS demonstrated improvement over baseline of up to 70.0%, over 12 months. cBPI success using PSS OR PIS demonstrated improvement over baseline of up to 81.8% over 12 months. Clinician's lameness examination showed statistical improvement compared to baseline at day 90. Force plate evaluation demonstrated improvement in PF or IMP of up to 66.7% in either elbow over 180 days. No safety issues were noted.

CONCLUSION

The therapeutic success and safety of HTC for OA in dogs supports the use of AHTC in upcoming human trials.

C Doerr, J Donecker, N Stevenson, G Gonzales, J Lattimer