

LOW FIELD MAGNETIC RESONANCE IMAGING (MRI) AND TRANSCRANIAL MAGNETIC STIMULATION (TMS) IN DOGS WITH AND WITHOUT CLINICAL SIGNS OF DISK ASSOCIATED WOBBLER SYNDROME (DAWS). S De Decker¹, I Gielen¹, L Duchateau¹, J Lang², R Dennis³, N Corzo⁴, H van Bree¹, I Van Soens¹, L Van Ham¹. ¹Faculty of Veterinary Medicine, Ghent University, Belgium, ² Bern University, Suisse, ³Animal Health Trust, United Kingdom, ⁴Davies Veterinary Specialists, United Kingdom.

The purpose of this study was to investigate the spectrum, incidence, repeatability, and consequences of cervical MRI abnormalities in dogs with and without DAWS. Additionally, it was evaluated if TMS could differentiate between relevant and irrelevant cord compressions.

Twenty clinically normal Doberman Pinschers, 17 clinically normal Foxhounds, and 21 dogs with DAWS underwent cervical MRI (0.2T). Disk degeneration, ventral and dorsal spinal cord compression, vertebral body abnormalities, and intraspinal signal intensity (ISI) changes were evaluated. In the first part of this study, the MRI studies of all clinically normal dogs were reviewed. In the second part, MRI of dogs with DAWS were randomly mixed with those of age-matched clinically normal Doberman Pinschers (n=12) and Foxhounds (n=11) and were presented to 4 board-certified radiologists. In the third part, Doberman Pinschers with clinical signs of DAWS (n=16), and clinically normal Doberman Pinschers with (n=6) and without (n=11) spinal cord compression underwent TMS with recording of latencies and amplitudes from the extensor carpi radialis (ECRM) and cranial tibial (CTM) muscles.

The first part of this study revealed a high incidence of MRI abnormalities in clinically normal Doberman Pinschers and Foxhounds. Only the occurrence of vertebral body abnormalities was significantly higher in Doberman Pinschers. Disk degeneration and ventral compression were significantly associated with higher age. Disk degeneration, ventral and dorsal compression were significantly associated with the more caudal disk spaces. The results of the second part demonstrated a good intraobserver agreement for dorsal compression and new bone formation. The other parameters were associated with a very good intraobserver agreement. Interobserver agreement was considered good for disk degeneration and vertebral body abnormalities and moderate for the other assessed parameters. Two of the 21 patients and 4 of the 23 clinically normal dogs were erroneously categorized as clinically normal and clinically affected, respectively. The results of the third part of the study demonstrated significant differences in ECRM latencies, CTM latencies, and CTM amplitudes between the 3 different groups globally and between clinically affected Doberman Pinschers and the two groups of clinically normal dogs separately. There were no significant differences between both groups of clinically normal Doberman Pinschers.

Degenerative MRI abnormalities are commonly seen in the caudal cervical region of older clinically normal Doberman Pinschers and Foxhounds. These findings are generally associated with a very good intraobserver agreement, moderate interobserver agreement and the occurrence of false positive and false negative clinical assessments. TMS can be used to differentiate between clinically relevant and irrelevant spinal cord compressions seen on MRI.

