



MAGNETIC MOTOR EVOKED POTENTIALS OF CERVICAL MUSCLES IN HORSES

Introduction

The use of transcranial magnetic stimulation (TMS) in ataxic horses has been validated to assess the functionality of descending motor tracts (Nollet *et al.*, 2002; Nollet *et al.*, 2003). Nollet *et al.* (2004) established reference values for the thoracic and pelvic limbs and showed that a prolonged onset latency in all 4 limbs indicates cervical spinal cord disease. No data are however available to further localize the lesion within the cervical area. The present study investigates whether magnetic motor evoked potentials (MMEPs) can be registered from cervical musculature at different vertebral segments and determines latency and amplitude values in normal horses.

Material and Methods

Forty-two neurologically normal horses were sedated with detomidine and butorphanol. After placement of monopolar needle electrodes in the paravertebral muscles at the level of each cervical vertebra, TMS was performed and MMEPs were registered. From each recording, latency and amplitude were determined.

Results

All stimulations resulted in measurable MMEPs. Mean latency values showed significant differences per vertebral segment and progressively increased from 13.8±1.7 ms at C3 towards 17.6±1.6 ms at C8. Mean amplitude values per cervical segment ranged from 4.4±2.4 mV to 6.4±4.3 mV but without specific trend from cranial to caudal. Both latency and amplitude were significantly influenced by horse height.

Conclusion

Cervical muscle MMEPs could be successfully registered from each vertebral segment along the neck in normal horses. These data serve as reference to assess the applicability of cervical MMEPs for more precise localization of cervical lesions in ataxic horses.

References

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Joke Rijckaert (DVM)*,
Philip Joosten (DVM),
Bart Pardon (DVM, PhD)*,
Gunther van Loon (DVM,
PhD, Dipl ECEIM)*,
Piet Deprez (DVM, PhD, Dipl
ECBHM)*

* Department of Large
Animal Internal Medicine,
Faculty of Veterinary
Medicine, Ghent
University, Salisburylaan
133, 9820 Merelbeke
Belgium

Joke.Rijckaert@ugent.be