

QUANTITATIVE MOTOR UNIT ACTION POTENTIAL ANALYSIS IN TWO PARASPINAL MUSCLES IN SOUND ADULT WARMBLOOD HORSES

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Aims: to determine normative data on quantitative motor unit action potential (MUP) analysis of the paraspinal muscles serratus ventralis and brachiocephalicus and to investigate differences between muscles and/or localizations. **Methods:** Seven adult (mean age 9.5 SD 2.3 year, mean height 1.64 SD 4.5cm, and mean rectal temperature 37.6 SD 0.3 °C) normal Dutch warmblood horses without clinical neurological signs and radiographic abnormalities of the cervical column underwent quantitative MUP analysis. In each muscle 6 segments were measured. Segments were defined by palpation of the transverse processes of the cervical vertebrae and represent the area between two respective vertebrae. Commercial EMG equipment (Viking Quest) was used. Measurements were performed according to formerly published methods. ANOVA with posthoc testing according to Bonferroni on LN transformed data was used SPSS 15.0 to analyze the data. **Results:** No significant differences ($P < 0.80-1.00$) existed in mean duration, amplitude, number of phases, area and size index among the six segments in both muscles; only the number of polyphasic (> 3.0 phases) MUPS was higher ($p < 0.03$) in the segment between the 3rd and 4th vertebrae in the serratus ventralis muscle. The mean amplitude, number of phases and size index were significantly higher in the serratus ventralis muscle ($P < 0.05$). 95 % CI intervals for serratus ventralis and brachiocephalicus muscle were for amplitude (488-551 μ V and 412-483 μ V), duration (4.3-4.6 msec and 4.3-4.7 msec), and number of phases (2.9-3.0 and 2.7-2.8). The mean number of polyphasic MUPS was maximally 1.7. Complex MUPS (> 5 turns) were absent.

Conclusions and Practical Relevance: The establishment of normative data for these muscles allows objective quantitative EMG examination of paraspinal muscles in patients with suspected cervical neurogenic disorders. Muscle differences but not segmental differences should be taken into account. **Acknowledgements:** Department of Companion Animal Sciences, Division Diagnostic Imaging, Faculty of Veterinary Medicine, Utrecht University.