E-POSTER PRESENTATIONS TOPIC: AS19 BRAIN REORGANISATION AND RECOVERY SOMATOTOPY OF THE INTERHEMISPHERIC INTERACTIONS REFLECTED IN PHYSIOLOGICAL MIRROR ACTIVITY: PRELIMINARY RESULTS

M. Nazarova, K. Kozlova , P. Novikov , M. Ivanov , M. Reshetnikov , M. Mitina , E. Nikiforova , M. Baklushev and V. Nikulin

Background and Aims: Interhemispheric interaction plays an important role in motor stroke recovery, especially in the field of neuromodulation. Interhemispheric interactions can be probed with physiological mirror activity (pMA), which is an involuntary muscle activity in one limb occurring when muscles of the opposite limb are contracted. We suggest that pMA may serve as a model for studying the somatotopy of the interhemispheric interactions, hypothesizing that the pMA is more prominent in homologue compared to non-homologue muscles. Methods: 18 healthy right-handed volunteers (nine females, 19 to 34 y. o.) participated in the study. Surface EMG was recorded from the abductor pollicis brevis, abductor digiti minimi and extensor carpi ulnaris from both hands. Subjects were instructed to perform thumb and little finger abduction for 3–4 seconds with 60–80% of the maximal muscle activity with their right hand, while pMA was assessed in the left hand. Results: We observed pMA in 16 out of 18 participants, and it tended to increase with the repetitions. pMA peak-to-peak amplitude varied from 20 to 1000 mV, latency - from 50 to 4500 ms. pMA was more prominent in homologous than in non-homologous muscles (Figure 1). Abstracts 247 Conclusions: Our preliminary results demonstrated the feasibility of pMA testing to investigate the somatotopy of the interhemispheric interactions in the motor system. We suggest that the spatial specificity of pMA can be used for planning neuromodulatory protocols in motor stroke. The study was funded by RFBR grant @20-315-70048. This study used the HSE Synchronous Eye-tracking, Brain Signal Recording and Non-Invasive Brain Stimulation System.