**Title of the project:** Testing of diagnostic possibilities of a new mobile device for visual evoked potentials examination

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**Principal Investigator:** Miroslav Kuba

**Co-investigators:** Jan Kremláček, Jana Langrová, Jana Szanyi, Zuzana Kubová, František Vít

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**Summary of 2019 results**

**Title of the presentation:** Testing of diagnostic possibilities of a new mobile device for visual evoked potentials examination (VEPs) - preliminary results

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After testing of the EPort 4 prototype of the mobile device for VEPs examination (described in the last year report) it was evident that the sensitivity of these VEPs in neuro-ophthalmological patients is lower because of the limited spatial frequency of the pattern-reversal stimuli due to a low density of LEDs in the stimulation part of the device. Thus we introduced additionally a new kind of visual stimulation on a standard iPad display with spatial frequencies of the reversing checkerboard 60’ and 15’ (according to standards of the International Society for Clinical Electrophysiology of Vision). We verified the effectiveness of this stimulation in 24 patients with Multiple Sclerosis and we compared the parameters of these pattern-reversal VEPs with standard examination in our Electrophysiological lab. There were no significant differences found, which confirms that it is possible to use our new mobile device for the routine examination of VEPs - in particular in immobilized and other patients who cannot undergo the examination in a standard lab.

In 17 schizophrenic patients we tested also cognitive VEPs (recognition of colours) with the aim to objectivize the suspected cognitive deficit manifested by prolonged latencies of P300 waves. The control group examination was not completed yet.

On the basis of the obtained results we suggested some technical changes of the prototype and EPort 5 version is under construction.

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