Václav Masopust et al., J Neurol Neurophysiol 2016, 7:6(Suppl)
http://dx.doi.org/10.4172/2155-9562.C1.038

Stimulation of periaqueductal gray

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Introduction: The stimulation of periaqueductal gray represents the possibility of the whole body analgesia by the inhibition of spinal nociceptive neurons in theory. For this inhibition is responsible nucleus raphae magnus–the inception of descending serotonergic pathways. If it could be to change a theoretical possibility to practical use, it would mean a major advance in the treatment of pain.

Materials & Methods: For the localization of an aqueductus sinusography and ventriculography of five pigs was made. Subsequently, the electrode was introduced through the lateral ventricle, then to the third ventricle and aqueduct under X-ray control. Subcutaneous formalin was applied before and after stimulation. The pulse and blood pressure were controlled for the whole time.

Results: The introduction of electrodes didn't influence blood pressure and pulse. The changes of these values didn't occur; neither after the application of formalin. During subsequent stimulation and consecutive application of formalin, the parameters weren't changing.

Conclusion: The introduction of electrodes into the aqueduct and the subsequent stimulation isn't the cause of changes of the circulatory parameters so introducing electrodes seem relatively safe. Analgesic effect of stimulation wasn't vindicated but these data can be dependent on the deep of general anesthesia.

Biography

Václav Masopust, MD, graduated from the 1st Faculty of Medicine, Charles University in Prague, and has worked as a Secondary Doctor at the Neurosurgery Department of the Central Military Hospital, University Military Hospital from 1995 to 2013. In 2013, after returning from mission in Afghanistan, he started to work as a Deputy Chief Physician at the same workplace. He has completed his PhD from Charles University, Prague. Since 2000, he has attended 6 courses focused on neuromodulation. He has organized three courses regarding neuromodulation issues. He has co-authored three books dealing with neurosurgery and has published 30 peer-reviewed articles in Czech and foreign journals in the field of surgical treatment of pain and neuromodulation.

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