THE EFFECT OF THE ETHYL ALCOHOL ON THE CENTRAL NERVOUS SYSTEM (CNS) - USELFULNESS OF HMRS TECHNIQUE

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AIM:
The aim was to assess the effect of ethyl alcohol on the CNS with the HMRS technique.
MATERIAL AND METHODS:
The research, performed with the HMRS Signa Excite 1.5T (GEMS) system, covered 14 healthy male volunteers aged 22 to 55 (aver. 34.8), occasionally consuming alcohol. The experiment consisted of four sessions in different time intervals. The volunteers were examined before the first meal of the day in the first session prior to drinking alcohol (150 ml of vodka) after 0.5h, 1h, and 2h.
RESULTS:
We notice after drinking alcohol: 1.2 ppm (Eth) peak in all the locations of the brain, increase in Lip/Cr (up to 53%), Lac/Cr (up to 76%), Glc1/Cr (up to 26%) and Glc2/Cr (up to 24%), decrease in GABA/Cr (up to 23%), Glx1/Cr (up to 14%), Glc1/Cr (up to 37%), Glx2/Cr (up to 27%), all in the following sessions. No significant changes were noticed related to the proportions of NAA/Cr, Cho/Cr, and mI/Cr in the examined locations.
CONCLUSIONS:
HMRS is a non-invasive, neurochemical method, which enables assessment of the effect of ethyl alcohol on the CNS.
On the basis of the conducted research, the following was found out:
1. Presence of ethyl alcohol in cerebral tissue on the basis of the visible peak 1.2 ppm, absent in the spectra from the first session prior to drinking alcohol.
2. The changes in maintaining the relative proportions in concentrations, especially for Lip/Cr, Lac/Cr, Glc/Cr, GABA/Cr and Glx/Cr.