Effect of the combined administration of ethanol and acamprosate on rabbit EEG

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Abstract:
Central effect of ethyl alcohol and acamprosate is based on similar mechanisms. It is mainly connected with their effect on GABAergic, glutamatergic, serotonergic and opioid transmission. Thus, the question arises whether acamprosate administered together with alcohol increases acute central effects of ethanol.

We have studied the effect of joint administration of acamprosate with ethanol in rabbits on EEG results from: frontal cortex, hippocampus and midbrain reticular formation. Acamprosate was applied into the stomach at a single dose of 400 mg kg⁻¹ or repeated doses of 200 mg kg⁻¹/day (for 14 days). Ethanol at the dose of 0.8 g kg⁻¹ was administered iv 120 min after a single dose of acamprosate, or 4 h after the last dose of the drug.

Ethanol caused an increase in the slow frequencies (0.5–4 Hz) in the recording, as well as a marked decrease in the fastest frequencies (13–30 and 30–45 Hz). Acamprosate administered jointly with ethanol increased the effect of ethanol on EEG recording; the amount of the fastest frequencies was decreased. When administered as repeated doses, it enhanced alcohol-related changes in EEG, both within slow and fast frequencies. Consumption of ethanol during acamprosate treatment may lead to intensification of central effects of ethanol.

Key words:
EEG, ethanol, acamprosate, interaction, rabbits