Diabetes Mellitus and Alcohol

Geghamyan, Ani (School: High School #118 after A. Yerznkyan)
Ghazaryan , Anna (School: High School #118 after A. Yerznkyan)
Taroyan , Anna (School: High School #118 after A. Yerznkyan)

PURPOSE: The aim of our research was to evaluate the effects of ethanol and some amino acids mixture on alloxan-induced diabetic rats, to study their behavior changes and to investigate blood morphology and elements counts. PROCEDURE: We used 32 male albino rats, dividing them into four groups of 4 each in two series: group 1 (normal control), group 2 (diabetic control), group 3 (diabetic + ethanol: 25% v/v ethanol 2,5g/kg), group 4 (diabetic + amino acid mixture: 100 mg/kg GABA, 50 mg/kg glutamine, 100 mg/kg β-alanine). Diabetes was induced by intraperitoneal injection of alloxan (150 mg/kg). The “Open field’’ test was used for the evaluation of the motor-cognitive impairment of the animals. The blood smears were investigated by the Romanowsky-Giemsa staining. RESULTS: Single intraperitoneal injection of ethanol, as well as the amino acid mixture to alloxan-induced diabetic rats have a hypoglycemic effect, significantly ($p<0,05$) reducing the blood glucose level by 26% and 33% respectively. The “Open field’’ test has shown that alloxan is decreasing motor, orientation-research activity, suppressing emotions, initiating depression. The ethanol and the amino acids mixture were reducing the glucose level, the motor-cognitive behavior of the animals as well as lymphocytes differential calculation changes (in the frames of the norm). Morphological examination of blood smears showed partial destruction (hemolysis) of erythrocytes by alloxan. A violation of the integrity of the lymphocyte membranes was also observed, which is usually characteristic of organism poisoning. CONCLUSIONS: Ethanol and mentioned amino acids mixture have a protective therapeutic effect in experimental diabetes.