

# Dual Diagnosis

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## Membrane protective effect of molixan in acute ethanol intoxication

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To elucidate the molecular mechanisms of the toxic action of ethanol, we have studied phospholipid and protein components of biological membranes, enzyme systems of the initial stages of biosynthesis and degradation, lipid peroxidation before and after applying of molixan. The aim of the research is to track change of mitochondrial and cytoplasmatic glycerophosphate dehydrogenases (GPDs), glycerokinase (GK) activities, specter of membrane phospholipids and activity of plasma membrane's marker - ecto-5'-nucleotidase (e5'N), in liver of rats at 40% ethanol administration in a dose 1,5 LD50 before and after using disulfide containing preparation molixan, having cytoprotective effect. The efficacy of molixan was estimated on the basis of the following schedule: in the case of preventive application of drug (single administration 1 hour before ethanol), in the case of therapeutic and preventative application (1 hour before and immediately after ethanol administration), in the case of early treatment (immediately after administration of ethanol, and 2 consecutive days, once on each day) and in the case of delayed treatment (30 min after administration of ethanol and for 2 consecutive days, once a day). It is established that administration of ethanol in a dose 1,5 LD50 led to decrease in the activity of both mitochondrial, and cytoplasmic GPDs and GK in the liver of the rats exposed to ethanol influence (in 4, 2, 8 and 3 fold respectively). It is defined and statistically verified that there is a decrease in majority of PL fractions with simultaneous decrease (for 21.7%) in PL total level. Under these conditions almost two-fold increase of phosphatidic acids, phosphatidylserine and diphosphatidyl glycerols and lysophosphatidylcholines content and activity of e5'N (2.4 fold) is observed. Application of molixan led to the expressed normalization of the studied parameters, especially at preventive, therapeutic and preventative applications of the medicine. Early and delayed treatment effects of a molixan were less expressed. Thus, one of the ways of realization of hepatoprotective action of molixan in acute intoxication with ethanol can be strengthened by oxidation processes in hepatocytes, in particular normalization of the glycerophosphate shuttle mechanism. Application of molixan after the acute ethanol intoxication makes sound corrections in structural-functional state of membranes, which undoubtedly, leads to normalization of the hepatocytes functional status in a whole.

### Biography

P A Ghazaryan is a Professor at The Haematological Center after Prof. R O Yeolyan MH RA, Deputy Scientific Director, Yerevan State University, Professor of the Department of Pharmaceutics, Armenia. His research areas are Biochemistry, Molecular Biology, Haematology, Palliative Care, Pathogenesis and Treatment.

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