

## Influence of molixan on energy balance correction in acute ethanol intoxication

P A Ghazaryan<sup>1</sup>, A M Markosyan<sup>2</sup> and A P Pepanyan<sup>1</sup>

<sup>1</sup>Haematology Centre after Prof. R. Yeolyan, Armenia

<sup>2</sup>Institute of Biochemistry after acad. G.Buniatyan, Armenia

It is known that one of ways of realization of toxic effect of ethanol is formation of excess quantity of reduced NAD in the course of ethanol biotransformation as the metabolism of the main physiological energy substrates is competitively broken. Acute ethanol poisoning causes decrease oxidizing processes in mitochondria, oxidation of a piruvate with increase in production of a lactate, the ketone bodies and free fatty acids is broken. The research aims to track changes of mitochondrial and cytoplasmatic glycerophosphate dehydrogenases (GPDs) activities, lactate/piruvate and NAD/NADH<sub>2</sub> ratios in a liver of rats at 40% ethanol administration in a dose 1,5LD<sub>50</sub> before and after using disulfide containing preparation molixan, having cytoprotective effect. The efficacy of molixan was estimation the base 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 1,5LD<sub>50</sub> led to decrease of the activity of both mitochondrial, and cytoplasmic GPDs in the liver of the rats exposed to ethanol influence (in 4 and 2,8 fold respectively), increase the lactate/piruvate (4,7 fold) and decrease the NAD/NADN<sub>2</sub> ratios (6,4 fold). Application of molixan led to the expressed normalization of the studied parameters, especially at preventive, therapeutic and preventative applications the medicine. Early and delayed treatment effects of a molixan were less expressed. Thus, one of ways of realization of hepatoprotective action of molixan in acute intoxication with ethanol can be strengthening of oxidation processes in mitochondria, in particular normalization of the glycerophosphate shuttle mechanism that leads to stabilization of oxidized and reduced NAD ratio, consequently elimination of energy disbalace in hepatocytes.

### Biography

P A Ghazaryan has completed his Education (beginning with IHE) from Yerevan State University, Department of Biochemistry. He is the Professor of Doctor of Biological Sciences. He has published 441 scientific papers and two textbooks (Moscow), two monographs (2012, Germany) and is Deputy Editor of the Journal "Blood" (since 2005), Editor-in-Response of "Pharma" (since 2010). In 2007, he became a member of the American Association of Chemists, and a full member (academician) of the Academies of Natural Sciences (2008) and Medical-Technical Sciences of RF (2009), the European Natural Sciences (2010).

ghazarpa@yahoo.com

### Notes: