

NONMITOCHONDRIAL GLUTAMATE DEHYDROGENASE IN SERA OF ALCOHOLICS

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- Background** *Glutamate dehydrogenase (GLDH) is to be found almost exclusively in mitochondrial matrix of all tissues except erythrocytes. GLDH occurs in two catalytically active forms, determined as soluble (thermo stable) and particulate (thermo labile). The more recent data show it also occurs in rough endoplasmic reticulum in thermo stable form. The housekeeping GLDH (thermo stable) and nerve tissue-specific (thermo labile) could be found in the brain. The GLUD1 gene (housekeeping GLDH) is localised on human chromosome 10 and is expressed as a thermo stable isoprotein, while GLUD2 (nerve tissue-specific) is localised on human chromosome X and is expressed as thermo labile isoprotein. The increased sera GLDH activity is believed to be exclusively the result of liver damage caused by mitochondrial injury at cell necrosis. We wanted to examine, whether GLDH detected in sera of alcoholics may be exclusively derived from hepatocyte mitochondria or even from rough endoplasmic reticulum.*
- Patients and methods** *GLDH activity was assessed in 205 patients admitted to hospital for treatment of alcohol dependence.*
- Results** *In sera of alcoholics we found on average 32.4 % thermo-stable and 67.6 % thermo-labile GLDH. 62.93 % (129) among all of them had more than 20 % thermo stable GLDH, in 59.06 % cases it was over 20th percentile. The distribution of both isoproteins was uneven. What means that almost one third of serum GLDH originates from rough endoplasmic reticulum and the rest from mitochondria. This is an absolutely new finding. There was a moderate correlation between thermo stable GLDH in rough endoplasmic reticulum and GGT induced by elevated CYP2E1 activity.*