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▶ Glutamate dehydrogenase as a marker of alcohol dependence.

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Kravos M., Malešič I. Request reprint
Alcohol and Alcoholism: 2010, 45(1), p. 39–44.

Slovenian study identifies which chemicals in the blood best identify dependent drinkers in the sense of not missing those who are dependent, confirming when they have stopped drinking, and not falsely identifying non-dependent people as dependent.

Summary The aim of this study was to determine the value of biochemical tests for glutamate dehydrogenase (GLDH) in the blood as way of diagnosing alcohol dependence, in particular as compared to or in combination with other biochemical markers including gama-glutamyltransferase (GGT), aspartate-aminotranferase (AST), alanine-aminotransferase (ALT) and erythrocyte mean cell volume (MCV). All these levels were assessed three times in 238 alcohol dependent patients admitted to hospital (on admission, after 24 hours and after seven days) and also in healthy members of the public.

Main findings All the values were significantly higher in the patients than in healthy persons. GLDH exhibited the fastest decrease in levels after the resumption of abstinence. 24 hours of non-drinking is sufficient for a reliable evaluation of the fall in GLDH activity, even more so when alcohol dependants had not drunk for three to seven days, offering a way to confirm the cessation of drinking. The time course of changes in GLDH and AST were more applicable than for GGT after a week, but GLDH changes were most reliable. GLDH was the most specific marker with almost 90% specificity, correctly identifying nine in 10 of the healthy subjects as non-dependent. A decision tree combining MCV, GGT and GLDH markers was selected as the best diagnostic procedure because of its simplicity, easy examination and moderate cost. It gave a model with 84.5% accuracy, excellent specificity at 90% (correctly identifying 9 in 10 healthy subjects as non-dependent) and very high sensitivity at almost 80% (correctly identifying 8 in 10 alcohol dependent patients as dependent).

Conclusions The high accuracy of our classification model provides an opportunity to

apply it as a helping method in finding and diagnosing alcohol dependence in everyday practice, with our exclusion criteria and differential diagnostic cautions taken into consideration. We strongly believe that watching changes in the activity of laboratory markers of alcoholism is an effective yet overlooked aid.

Thanks for their comments on this entry in draft to Matej Kravos of the Psychiatric Hospital Ormoz in Slovenia. Commentators bear no responsibility for the text including the interpretations and any remaining errors.

Last revised 22 August 2011

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