
EPIGENETIC ALTERATION IN ALDH2-METABOLISM IN ALCOHOL-DEPENDENT PATIENTS

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Introduction: Changes in DNA-methylation patterns in alcohol-dependent patients have been described in various studies. However, epigenetic regulation of genes responsible for the ethanol metabolism has not been in the focus of recent research.

Objective: Aim of our study was to evaluate changes in DNA-methylation of the aldehyde dehydrogenase 2 (ALDH2) in respect to genetic variants (rs886205 ALDH2-SNP) in blood samples of alcohol-dependent patients compared with healthy controls.

Methods: During an inpatients detoxification treatment we draw blood samples from 82 alcohol-dependent, male patients on day 1, day 7 and day 14. Bisulfite-treated DNA was subjected to methylation analysis via sequencing. Findings of the alcohol-dependent group were compared with results of a healthy control group (N=34)

Results: Our results show decreasing methylation levels of a repressive *ALDH2* promoter fragment to control levels only in homozygous A-allele patients of the rs886205 SNP.

Conclusion: Findings of this study reveal a specific genetic-epigenetic interaction in ALDH2 regulation which may have crucial importance for the understanding of epigenetic regulation of ethanol metabolism in humans.