THE EFFECTS OF ALCOHOL ABSTINENCE ON BDNF, GHRELIN AND LEPTIN SECRETIONS IN ALCOHOL DEPENDENT PATIENTS WITH GLUCOSE INTOLERANCE

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Alcohol use affecting the risk for type 2 diabetes (T2DM) is poorly identified as well as the role of brain-derived neurotrophic factor (BDNF), ghrelin and leptin in alcohol dependence with T2DM. We tested the hypothesis that alcohol abstinence affects diabetes-related factors and BDNF, ghrelin and leptin secretions in alcoholics with glucose intolerance.

64 male alcoholics were classified into normal glucose tolerance (NGT), pre-diabetes (Pre-DM) and diabetes (DM) group. All participants got alcohol dependence rehabilitation treatment for 30 days. After alcohol abstinence, both Pre-DM and DM groups had significantly decreased levels of fasting glucose. All groups exhibited elevated ghrelin and reduced leptin levels, but BDNF levels were significantly increased only in the Pre-DM group. The pre-DM group had large increases in BDNF and ghrelin levels compared to those of the NGT group. Moreover, decreases of homeostasis model assessment of insulin resistance, fasting glucose and leptin levels in the DM group were larger than those in the NGT group.

BDNF, ghrelin and leptin differently affect diabetes-related factors, depending on the stage of DM. In the Pre-DM group, elevated BDNF and ghrelin levels are likely to influence insulin sensitivity, insulin resistance and fasting glucose levels. Further, reduced leptin levels after abstinence might be related with improved glucose kinetics in diabetes patients.