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Moderate alcohol consumption is associated with advanced fibrosis in non-alcoholic fatty liver disease and shows a synergistic effect with type 2 diabetes mellitus

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Abstract

Background: Non-alcoholic fatty liver disease (NAFLD) is the most common chronic liver disease worldwide. Whether moderate alcohol consumption plays a role for progression of NAFLD is disputed. Moreover, it is not known which tool is ideal for assessment of alcohol consumption in NAFLD. This study aimed to evaluate if moderate alcohol consumption assessed with different methods, including the biological marker phosphatidylethanol (PEth), is associated with advanced fibrosis in NAFLD.

Methods: We conducted a cross-sectional study of patients with biopsy-proven NAFLD. All participants were clinically evaluated with medical history, blood tests, and anthropometric measurements. Alcohol consumption was assessed using PEth in blood, the questionnaire AUDIT-C, and clinical interview.

Findings: 86 patients were included of which 17% had advanced fibrosis. All participants reported alcohol consumption < 140 g/week. Average weekly alcohol consumption was higher in the group with advanced fibrosis. Moderate alcohol consumption, independently of the method of assessment, was associated with increased probability of advanced fibrosis (adjusted OR 5.5-9.7, 95% CI 1.05-69.6). Patients with type 2 diabetes mellitus (T2DM) consuming moderate amounts of alcohol had a significantly higher rate of advanced fibrosis compared with those consuming low amounts (50.0-60.0% vs. 3.3-21.6%, $p < 0.05$).

Conclusions: Moderate alcohol consumption, irrespective of assessment method (clinical interview, AUDIT-C, and PEth), was associated with advanced fibrosis. PEth in blood ≥ 50 ng/mL may be a biological marker indicating increased risk for advanced fibrosis in NAFLD. Patients with T2DM consuming moderate amounts of alcohol had the highest risk of advanced fibrosis, indicating a synergistic effect of insulin resistance and alcohol on the histopathological progression of NAFLD.

Keywords: Alcohol drinking; Non-alcoholic fatty liver disease; Phosphatidylethanol; Type 2 diabetes mellitus.