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Efficacy of glutathione for the treatment of nonalcoholic fatty liver disease: an open-label, single-arm, multicenter, pilot study.

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Abstract

BACKGROUND: Glutathione plays crucial roles in the detoxification and antioxidant systems of cells and has been used to treat acute poisoning and chronic liver diseases by intravenous injection. This is a first study examining the therapeutic effects of oral administration of glutathione in patients with nonalcoholic fatty liver disease (NAFLD).

METHODS: The study was an open label, single arm, multicenter, pilot trial. Thirty-four NAFLD patients diagnosed using ultrasonography were prospectively evaluated. All patients first underwent intervention to improve their lifestyle habits (diet and exercise) for 3 months, followed by treatment with glutathione (300 mg/day) for 4 months. We evaluated their clinical parameters before and after glutathione treatment. We also quantified liver fat and fibrosis using vibration-controlled transient elastography. The primary outcome of the study was the change in alanine aminotransferase (ALT) levels.

RESULTS: Twenty-nine patients finished the protocol. ALT levels significantly decreased following treatment with glutathione for 4 months. In addition, triglycerides, non-esterified fatty acids, and ferritin levels also decreased with glutathione treatment. Following dichotomization of ALT responders based on a median 12.9% decrease from baseline, we found that ALT responders were younger in age and did not have severe diabetes compared with ALT non-responders. The controlled attenuation parameter also decreased in ALT responders.

CONCLUSIONS: This pilot study demonstrates the potential therapeutic effects of oral administration of glutathione in practical dose for patients with NAFLD. Large-scale clinical trials are needed to verify its efficacy.

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KEYWORDS: Controlled attenuation parameter; Glutathione; Nonalcoholic fatty liver disease

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