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Effects of progressive weight loss on liver function tests in obese patients with nonalcoholic fatty liver disease

Category: Basic science relating to weight loss

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OBJECTIVES: Non-alcoholic fatty liver disease (NAFLD) affects over 80% of obese patients, and is fueled by the metabolic syndrome. Weight loss is strongly advocated as a central treatment for NAFLD, and has been shown to induce histological improvement. We aimed to define the patterns of improvement in NAFLD after gastric banding, and determine target weight goals for NAFLD resolution.

METHODS: A prospective study of 84 obese patients with metabolic syndrome undergoing laparoscopic adjustable gastric banding was conducted. Intraoperative liver biopsies were taken. Monthly follow-up, including anthropometric measurements and blood tests, was performed. We monitored improvements in NAFLD by monthly alanine aminotransferase (ALT) levels over one year.

RESULTS: There was rapid improvement in ALT, particularly in the first six months. A statistically significant decrease was seen at two months (35 vs 27 IU/L, $p < 0.001$), corresponding to a percentage total body weight loss (%TBWL) of 6.4% (4.2–8.2). In multivariate analysis, ALT improvement was significantly related to %TBWL of 10-15% (OR 2.49, $p = 0.005$), triglyceride levels (OR 0.59, $p = 0.021$) and baseline histological score (OR 0.28, $p < 0.001$). Improvements in ALT occurred prior to maximal weight loss and metabolic improvement.

CONCLUSION: Improvements in NAFLD occurred rapidly after bariatric surgery and were closely related to weight loss. Approximately 10-15% reduction in body weight is an appropriate target to achieve substantial improvement in ALT levels. In addition, improvements occurred prior to maximal improvement in other metabolic and weight loss measures.