Complete resolution of nonalcoholic fatty liver disease after bariatric surgery: a systematic review and meta-analysis

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Background
There is a rapidly growing body of evidence demonstrating the complete resolution of nonalcoholic fatty liver disease (NAFLD) following the sustained weight loss induced by bariatric surgery. We performed a systematic review and meta-analysis to evaluate the effect of bariatric surgery on NAFLD in obese patients.

Methods
We searched MEDLINE, EMBASE, CENTRAL, and Web of Science databases through May 2018 for studies that compared liver biopsy results before and after bariatric surgery in obese patients. Primary outcomes were biopsy-confirmed resolution of NAFLD and NAFLD activity score (NAS). Secondary outcomes were worsening of NAFLD after surgery and liver volume. The GRADE approach was conducted to assess overall quality of evidence.

Results
32 cohort studies involving a total of 3,093 biopsies met the inclusion criteria. Bariatric surgery resulted in a biopsy-confirmed resolution of steatosis in 66% (95% CI, 56–75%), inflammation in 50% (95% CI, 35–64%), ballooning degeneration in 76% (95% CI, 64–86%), and fibrosis in 40% of patients (95% CI, 29–51%). NAS was significantly reduced after bariatric surgery (MD 2.39; 95% CI, 1.58–3.20; $P<0.001$). However, bariatric surgery resulted in new or worsening features of NAFLD in 12% of patients (95% CI, 5–20%). The overall GRADE quality of evidence was low.

Conclusion
Bariatric surgery leads to complete resolution of NAFLD in substantial proportion of obese patients. However, there is a chance of patients developing new or worsening features of NAFLD. Randomized controlled trials are needed to further examine the therapeutic benefits of bariatric surgery for NAFLD.

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