Sleeve Gastrectomy for Liver Transplant Candidates with Obesity and Non-Alcoholic Steatohepatitis

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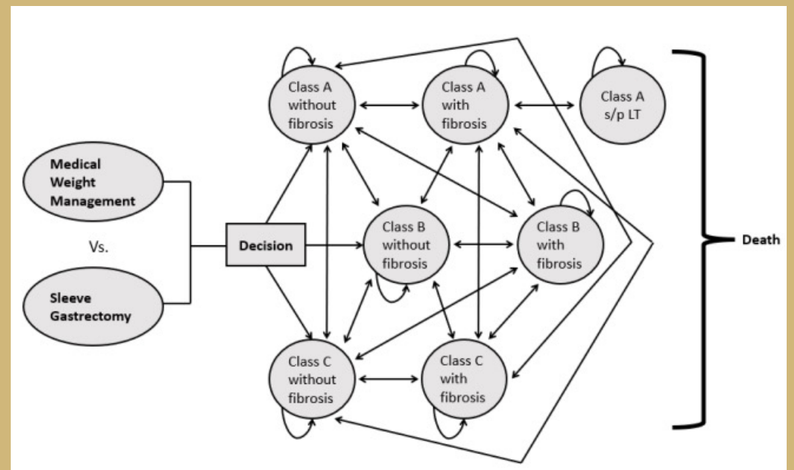
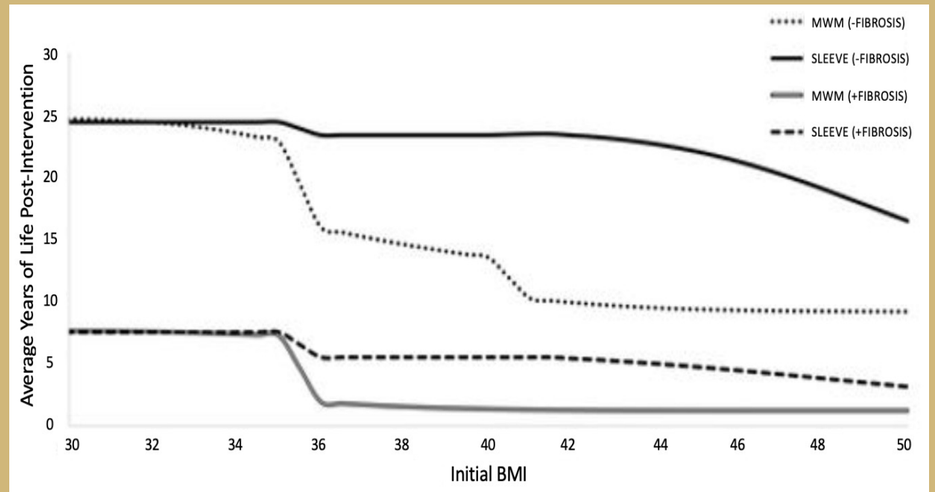
Background/Overview

Non-alcoholic steatohepatitis (NASH) is one of the leading indications for liver transplantation (LT) in the United States. As with the current obesity epidemic, the incidence of NASH continues to rise. However, the impact of broad utilization of metabolic and bariatric surgery (MBS) for patients with NASH is unknown, particularly in regard to mitigating the need for LT.

Methods

Markov decision modelling was performed to simulate the lives of 20,000 patients with concomitant obesity and NASH who were deemed ineligible to be waitlisted for LT unless they achieved a body mass index (BMI) <35 kg/m^2. Life expectancy following medical weight management (MWM) and sleeve gastrectomy (SG) were estimated. Base case patients were defined as having NASH without fibrosis and a pre-intervention BMI of 45 kg/m^2. Sensitivity analysis of initial BMI was performed. Model parameters were extracted from literature review.





Results

Simulated base case analysis patients who underwent SG gained 14.3 years of life compared to patients who underwent MWM. One year after weight loss intervention, 9% of simulated MWM patients required liver transplantation compared to only 5% of SG patients. Survival benefit for SG was observed above a BMI of 32.2 kg/m^2.

Conclusions

In this predictive model of 20,000 patients with concomitant obesity and NASH, surgical weight loss is associated with a reduction in the progression of NASH, thereby reducing the need for LT. A reduced BMI threshold of 32 kg/m^2 for MBS may offer survival benefit for patients with obesity and NASH.