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Impact of bariatric surgery on carotid intima-medial thickness and cardiovascular risk: results of a prospective study

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Abstract

Background The impact of bariatric surgery on atherosclerosis is a relatively less studied subject. Obesity has been identified as an independent risk factor for cardiovascular disease (CVD). Carotid intima-media thickness (CIMT), a surrogate marker for atherosclerosis and risk of CVD, has been found to be associated with obesity. Recent literature has shown that there is significant reduction in CIMT following bariatric surgery. The aim of this study was to evaluate the impact of bariatric surgery on CIMT and risk of CVD in an Indian population.

Methods This is a prospective study conducted in a tertiary referral centre in India. Patients undergoing bariatric surgery from December 2017 to September 2019 were included. CIMT measurements and American College of Cardiology/American Heart Association (ACC/AHA)-pooled cohort CVD risk scores were done before and at 6 months and 12 months after surgery.

Results Fifty-four patients were enrolled, of which 70% were females. Mean age was 40.8 ± 10.7 years. Mean pre-operative weight and mean BMI were 115.2 ± 21.9 kg and 45.9 ± 6.5 kg/m^2, respectively. Patients who completed 12-month follow-up were considered for analysis of outcomes. There was significant reduction in BMI to 33.1 ± 5.7 kg/m^2 at 12 months after surgery ($p < 0.0001$). Mean CIMT reduced significantly from 0.58 ± 0.08 mm at baseline to 0.52 ± 0.10 mm at 12 months. Lipid profile, fasting blood sugar and HbA_{1C} also improved, which resulted in reduction of lifetime and 10-year CVD risk from 42.3 to 26% and 4 to 1.5%, respectively, at 12 months after surgery.

Conclusions Bariatric surgery results in significant reduction in CIMT and CVD risk in patients with morbid obesity.

Keywords Carotid intima-media thickness · CIMT · Cardiovascular disease risk · Bariatric surgery

The positive impact of bariatric surgery on various obesity-related co-morbidities like diabetes, hypertension and obstructive sleep apnea has been studied widely. Its effect on atherosclerosis and cardiovascular disease (CVD) is

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