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A Single-Centre Study on the Transformative Impact of Bariatric Surgery on Metabolic Health in Malaysia

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Introduction:

Bariatric surgery is an effective intervention for obesity and related metabolic diseases. However, most studies are from Western populations with limited data in Malaysia. This study evaluated obesity and metabolic outcomes in a Malaysian cohort to contribute regional data to Southeast Asia.

Methods:

This retrospective analysis included 116 patients who underwent bariatric surgery between 2019 and 2025. Pre- and post-operative parameters, including body weight, BMI, waist circumference, glycaemic control, lipid profiles and blood pressure were collected at 1, 3, 6, 9 and 12 months. Longitudinal changes were assessed using mixed-effects repeated-measures models with post-hoc pairwise comparisons.

Results:

The mean age of participants was 40.5 years with a mean baseline BMI of 43.49 kg/m²; 58% were female. Over 12 months, mean body weight declined from 118.12±29.17kg to 88.70±23.75kg ($p<0.001$), accompanied by reductions in BMI from 43.49±10.31kg/m² to 32.51±9.54kg/m² ($p<0.001$) and waist circumference from 122.02±19.05cm to 95.86±15.66cm ($p<0.001$). These obesity parameters showed consistent reductions across all follow-ups 1, 3, 6, 9 and 12 months intervals (all $p<0.05$). Glycaemic control improved with HbA1c decreasing from 7.05±1.55% to 5.70±1.38% ($p<0.001$) showing significant reductions from 3 months onward as compared to baseline and a maximal reduction of 1.84% at 12 months. Fasting blood glucose declined from 7.37±2.54mmol/L to 5.46±1.69mmol/L ($p<0.001$) with sustained reductions at 3, 6, 9 and 12 months relative to baseline. Triglycerides decreased from 1.85±0.85mmol/L to 1.09±0.52mmol/L ($p<0.001$) with a marked decline from 6 months onward and the greatest reduction of 0.708mmol/L at 6 months. HDL cholesterol increased from 1.15±0.22mmol/L to 1.46±0.31mmol/L ($p<0.001$) demonstrating the largest gains of 0.344mmol/L at 12 months. LDL cholesterol showed no significant changes. Systolic blood pressure declined from 128.99±13.59mmHg to 116.43±14.51mmHg ($p=0.008$).

Conclusion:

Bariatric surgery was associated with substantial weight loss and improvements in metabolic parameters, therefore supporting its role in managing obesity-related metabolic diseases in Southeast Asia.