The effect of Roux-en-Y gastric bypass, sleeve gastrectomy and adjustable gastric banding on renal function and remission of metabolic disease: a five-year longitudinal study

Karl J Neff1, Gregory Baud2, Violeta Raverdy2, Carel le Roux1, Francois P Pattou2

1 Diabetes Complications Research Centre, Conway Institute, School of Medicine, University College Dublin, Ireland
2 General and Endocrine Surgery, Lille University Hospital, Lille, France;
Inserm U 859, European Genomic Institute for Diabetes, Lille University, Lille, France

OBJECTIVES

1. To investigate the effect of Roux-en-Y gastric bypass (RYGB), sleeve gastrectomy (SG) and adjustable gastric band (AGB) on renal function over a five-year follow-up period
2. To evaluate the effect of each procedure on metabolic disease, including diabetes and hypertension

METHODS

This study retrospectively analysed a prospectively collected database at Lille University Hospital
Patients were assessed preoperatively and then at 1 and 5 years postoperatively with renal function measured by MDRD and CKD-EPI
Subject undergoing RYGB (N=190), AGB (N=271) and SG (N=16) were included.
Diabetes remission was defined as fasting blood glucose of less than 5.6mmol/l (100mg/dL) and HbA1c less than 42mmol/l (6% DCCT) off anti-diabetic treatment
Hypertension remission was defined as a blood pressure of 140/80 or less off anti-hypertensive treatment.

RESULTS

Estimated glomerular filtration rate over time

Metabolic disease

In those with eGFR < 60ml/min/1.73m² (N=19), eGFR improved over five years (p=0.01)

In those with metabolic disease at baseline (table), RYGB and AGB both improved glycaemic control from baseline (p<0.05)

RYGB had a greater effect on reducing blood pressure and facilitated remission of hypertension (p<0.05)

CONCLUSIONS

1. RYGB and AGB are not associated with decline in renal function over five years in observational data
2. RYGB may be more effective than AGB in treating metabolic disease