

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



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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

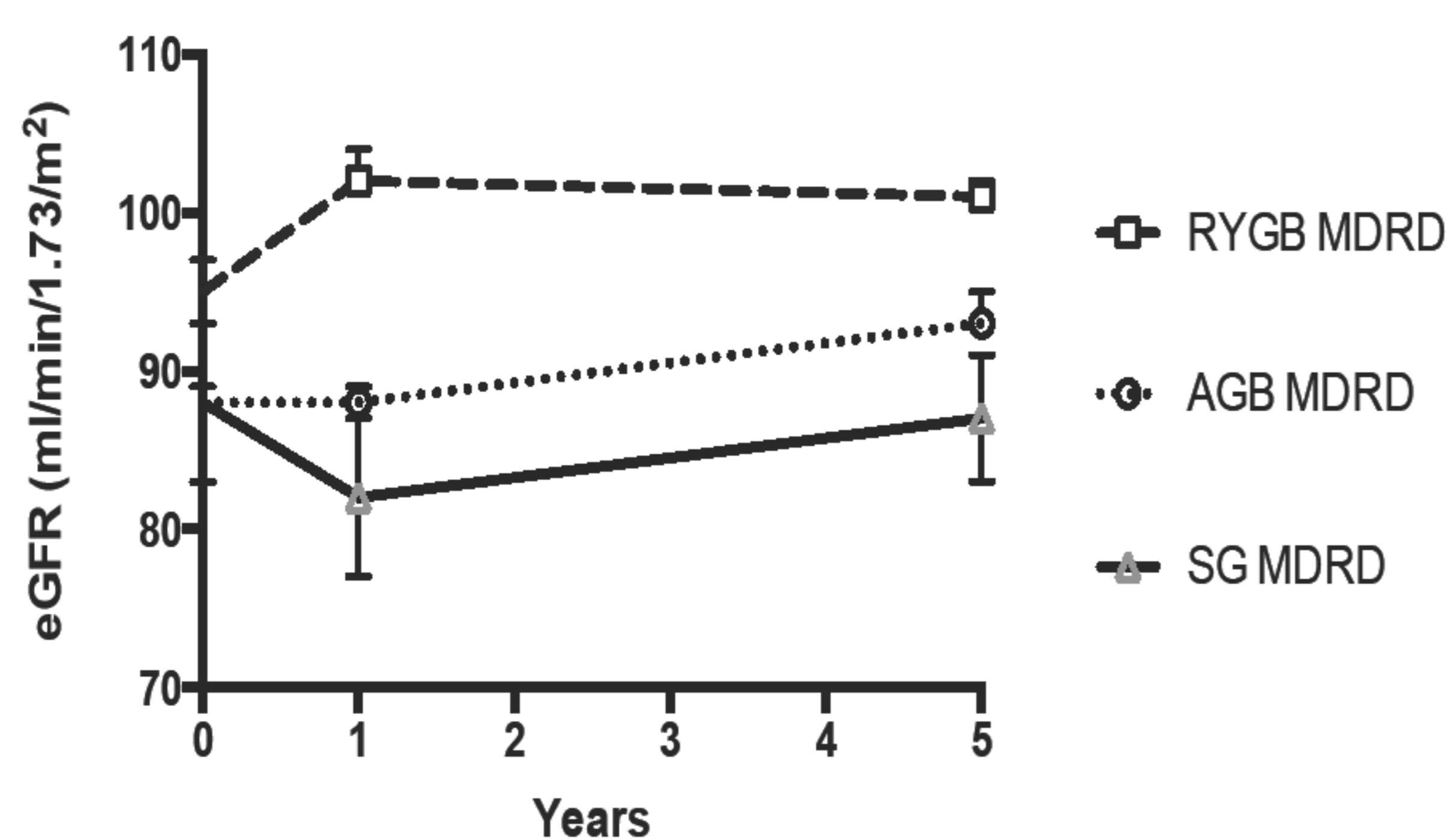
Patients were assessed preoperatively and then at 1 and 5 years postoperatively with renal function measured by MDRD and CKD-EPI. Subject undergoing RYGB (N=190), AGB (N=271) and SG (N=16) were included.

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

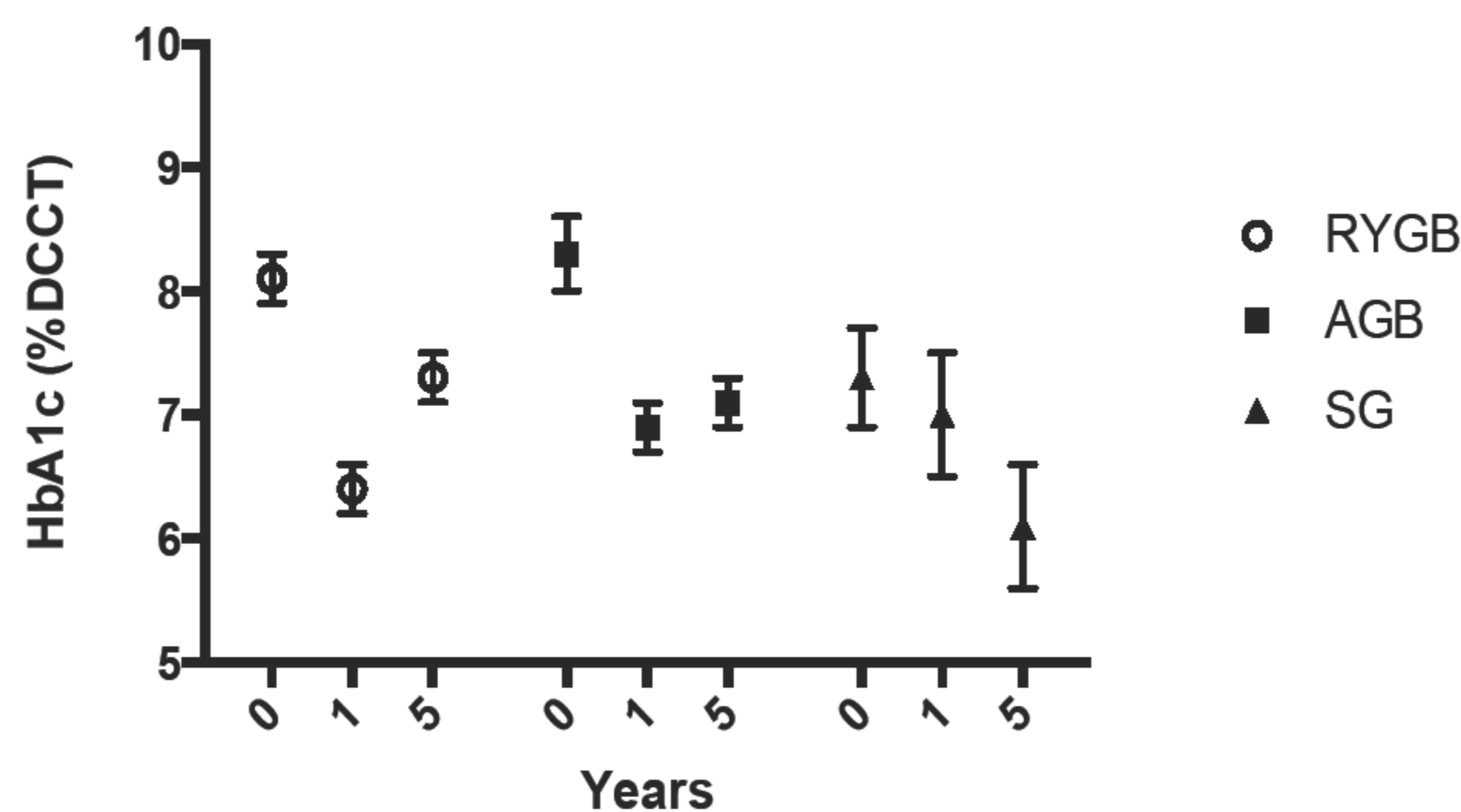
Hypertension remission was defined as a blood pressure of 140/80 or less off anti-hypertensive treatment.

RESULTS

Estimated glomerular filtration rate over time



Metabolic disease

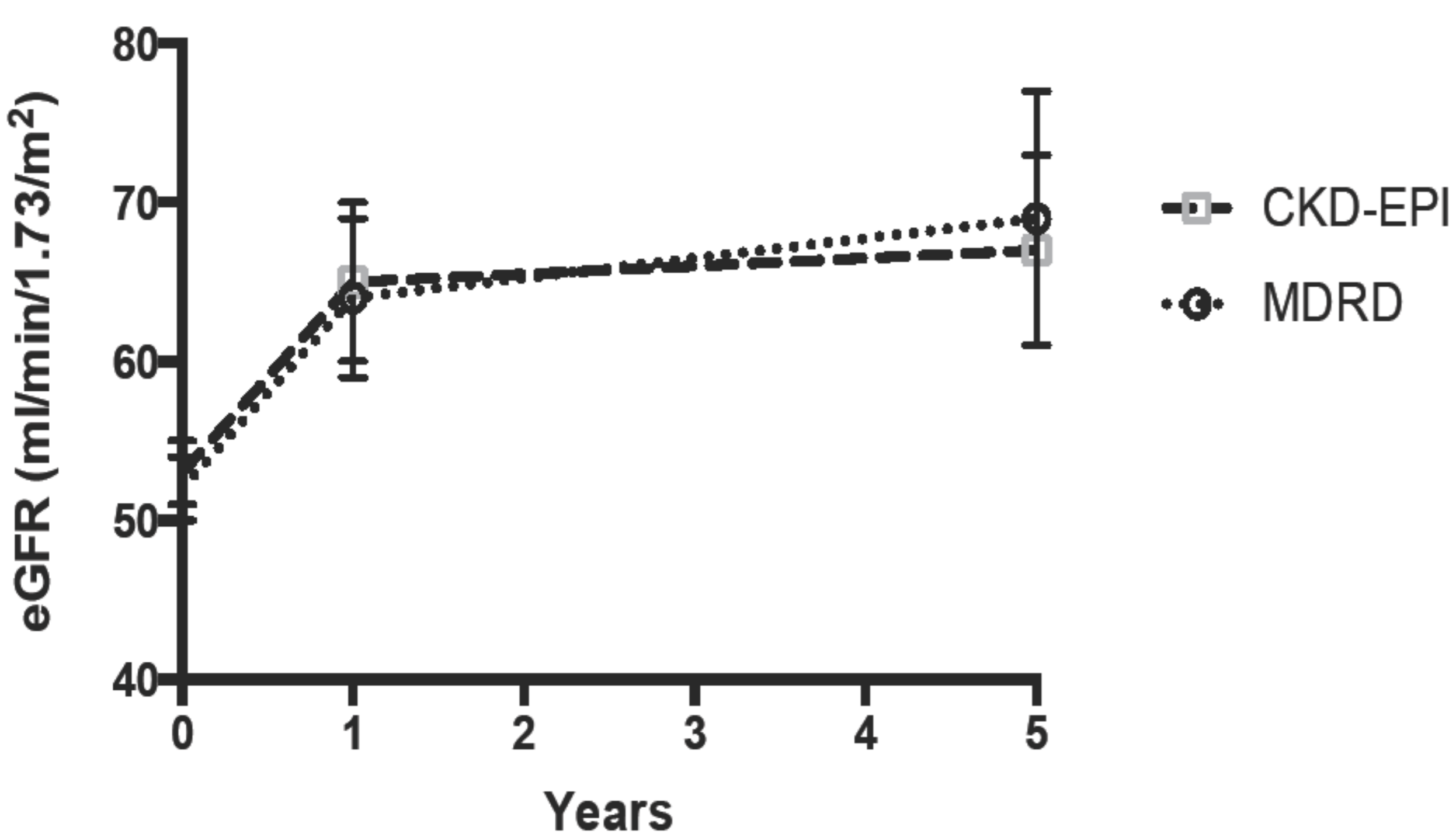


In those with metabolic disease at baseline (table), RYGB and AGB both improved glycaemic control from baseline (p<0.05)

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

Estimated glomerular filtration rate (eGFR) increased following RYGB and AGB (p=0.02)

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



	RYGB	AGB	SG	p
Number	108	123	13	
Female gender (number (percentage of total))	71 (66%)	90 (73%)	11 (85%)	0.18
Age (years)	45 ± 1	46 ± 1	51 ± 3	0.16
BMI at baseline (kg/m ²)	51 ± 1	49 ± 1	51 ± 3	0.35
BMI at year 1 (kg/m²)	37 ± 1+	42 ± 1+	40 ± 2	0.002+
BMI at year 5 (kg/m ²)	39 ± 1	39 ± 1	40 ± 2	0.94
Systolic blood pressure at baseline (mmHg)	145 ± 2	142 ± 2	155 ± 6	0.09
Remission of hypertension at year 1 (number)	35*	20*	3	0.02*
Systolic blood pressure at year 1 (mmHg)	130 ± 2	135 ± 2	142 ± 7	0.07
Remission of hypertension at year 5	25**	14**	2	0.03**
Systolic blood pressure at year 5 (mmHg)	136 ± 2++	137 ± 2	148 ± 7++	0.02++

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

