Glycaemic Control Outcomes Post-Bariatric Surgery In Individuals with Super Obesity: A single centre experience

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Background

Bariatric surgery (BS) is the most effective intervention for "common" obesity. A BMI > 50 kg/m^2, an obesity category known as super obesity, may have particular outcomes in glycaemic control apart from excess weight loss; there are few studies on these potential differences.

Aims

We have investigated BS outcomes on glycaemic control among the super obese in an Arab population seen at Imperial College London Diabetes Centre (ICLDC).

Methods

Super obese patients who had BS were identified from the electronic medical records. Pertinent details were extracted including HbA1c levels, age at BS, and type of BS. For patients who had undergone BS more than once, the last type of BS performed was considered in the analysis. Data analysed using SPSS version 24 and presented as median (inter quartile range-IQR).

Results

Twenty-one (12 (57.1%) females) Arab (20 (95.2%) Emirati and 1 (4.8%) Egyptian) individuals with super obesity (baseline weight 152.0 (145.5-157.0) kg, BMI 53.8 (52.3-56.3) 50 kg/m^2 , HbA1c 7.2 (6.4-8.6) %) who had BS (age at BS 38.3 (35.0-38.3) years; 19 (90.5 %) Roux-en-Y-gastric bypass-RYGB, 2 (9.5 %) gastric banding-GB) were identified.

Within 12 months post-BS, excess body weight loss was median 54.0 kg (35.5%); 11 (68.8%) were off antihyperglycaemic agents and 1 (6.2%) was off insulin; hyperlipidaemia persisted for 14 (66.7 %) and hypertension for 9 (42.9 %) patients. Diabetic nephropathy and neuropathy were noted to have stabilized for 1 (4.8%) patient. Sleep apnoea was observed

to have improved for 2 (9.5%) individuals. Paired samples t-test revealed that HbA1c levels were significantly lower ($p<0.05$) up to 6 years post-BS compared to baseline (Table 1).

	Median (IQR) HbA1c (%) N=21	**Paired samples t-test**		
Baseline	7.2 (6.4-8.6)	**Comparison**	**t**	**p-value**
3 months	5.9 (5.5-6.3)	Baseline vs 3 months	t(12) = 3.6	0.004
6 months	6.0 (5.5-6.3)	Baseline vs 6 months	t(14) = 4.1	0.001
1 year	5.5 (5.4-6.6)	Baseline vs 1 year	t(9) = 3.5	0.006
2 years	5.6 (5.2-6.6)	Baseline vs 2 years	t(10) = 3.8	0.004
3 years	5.7 (5.4-7.1)	Baseline vs 3 years	t(8) = 2.7	0.027
4 years	6.1 (5.7-6.9)	Baseline vs 4 years	t(11) = 3.8	0.003
5 years	7.0 (6.5-7.4)	Baseline vs 5 years	t(9) = 4.0	0.003
6 years	6.3 (5.6-7.8)	Baseline vs 6 years	t(9) = 2.9	0.019

Table 1. Median (IQR) HbA1c and paired samples t-test before (baseline) and after BS among super obese patients. *BS=bariatric surgery, IQR=interquartile range*

Discussion

Results are suggestive of medium-term significantly improved glycaemic control among Arab individuals with super obesity who underwent BS; similar outcomes have been reported by a different centre with the same population in a 2-year BS follow-up on morbidly obese individuals. Outcomes highlight the potential benefits of BS in the management and/or treatment of dysglycaemia among the super obese, although genetic test was not done in the cohort; aggressive pre-BS genetic testing may be further useful.