CONTINUOUS GLUCOSE MONITORING FOR EVALUATION OF GLYCEMIC VARIABILITY AFTER BARIATRIC SURGERY

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Background: Neuroglucopenic hypoglycaemia might be an underestimated threat of bariatric surgery, as Roux-en-Y gastric bypass (RYBG) or gastric sleeve. We aimed to evaluate glucose variability after bariatric surgery by continuous glucose monitoring (CGM) in a real-life setting.

Methods: CGM was used in twelve patients after undergoing bariatric surgery (RYBG or sleeve) and clinical suspicion of hypoglycemia, during seven days, to assess the incidence of hypoglycemia frequency under real life conditions. CGM was fulfilled through iProTM2 CGM device (Medtronic, Northridge, CA), in all patients.

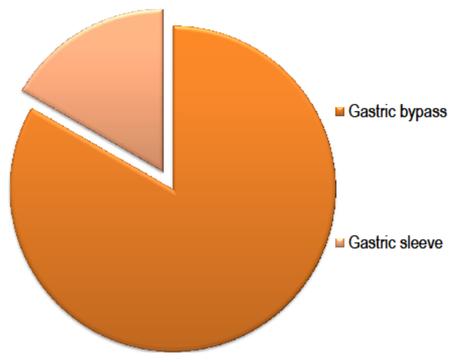
Results

N=12 patients

Women:100%

Median age=43.0 years (min 33; max 66)

Type of surgery	N	%
Roux *en Y* Gastric Bypass	**10**	**83.3**
Gastric Sleeve	12	16.7



Median Weight (previous to surgery)	Median Weight (at CGM)	*p*
124.50 Kg	82.95 Kg	**0.002***

*Wilcoxon Related-Samples Test

Median time after surgery: **3.50 years (min 1.00; max 6.00)**

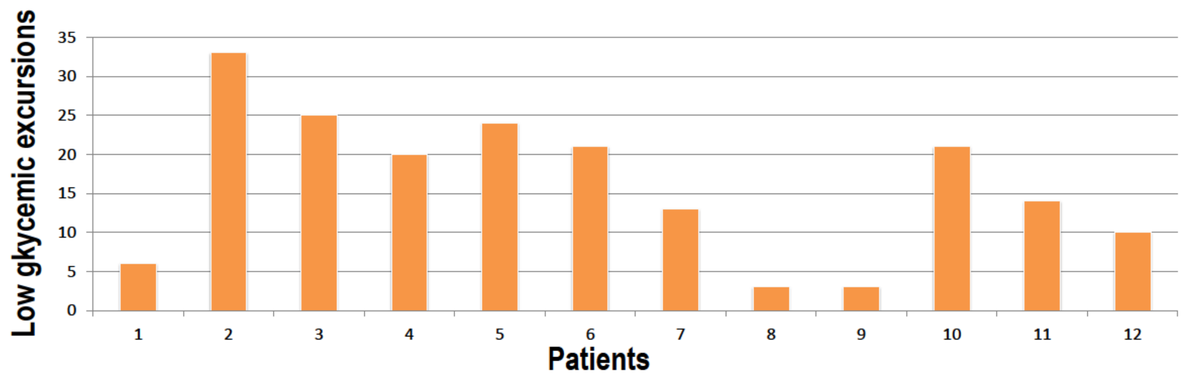
21 960
Glucose data points

Glycemic excursions

Hyperglycemia
N=107.0
Average:
194.50±62.51 mg/dL
(min 126; max 361)

Hypoglycemia
N=193.0
Average:
45.17±7.96 mg/dL
(min 40; max 54)

Low glycemic excursions *per* patient



Average exposure time hypoglycaemia: **11.79** hours

Number of hypoglycemic episodes on post-prandial state:
N= 157 (81.35%)

Glucose control and variability

INDEX	Result	Reference value
GRADE	0.990	0.0-4.7
M-Value	7.920	0.0-12.5
LBGI	5.450	0.0-6.9
HBGI	0.995	0.0-7.7
J-INDEX	10.94	4.7-23.6
CONGAn	3.955	3.6-5.5
MAGE	**3.205**	**0.0-2.8**
LI	1.79	0.0-4.7
SD	1.085	0.0-3.0

Conclusions: Glucose variability is exaggerated after bariatric surgery: hypoglycaemia occurred mostly in the post-prandial period and glucose variability was increased by glucose fluctuations, as evidenced by MAGE. As a result, CGM may be a valuable diagnostic tool and may have a role evaluating treatment response to dietary modifications, drug therapy or surgical reintervention.

Bibliography: Halperin F. *et al.* Continuous glucose monitoring for evaluation of glycemic excursions after gastric bypass. Journal of Obesity, 2011; Hanaire H *et al.*, High glycemic variability assessed by continuous glucose monitoring afer surgical treatment of obesity by gastric bypass. BJS 2015; 102: 307-317; Hill NR *et al.* Normal reference range for mean tissue glucose and glycemic variability derived from continuous glucose monitoring for subjects without Diabetes in different ethic groups. Diabetes Technology and Therapeutics, Vvolume 13, Number 9, 2011

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