

Experience with sleeve gastrectomy in adolescent obese subjects and in Prader-Willi Syndrome

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Background

Prader Willi Syndrome (PWS) results from the loss of paternally imprinted genes on chromosome 15q11-15 and is characterized by neonatal hypotonia, short stature, hypogonadism, aggressive food-seeking behavior, hyperphagia, and obesity with difficult in losing weight only with nutritional approach.

Bariatric surgery has been established as highly effective and safe intervention and with the increasing epidemic of pediatric obesity in most countries, there is a growing interest in bariatric surgery as an effective weight loss option in younger age groups also in PWS.

Objective and hypotheses

We report our experience on sleeve gastrectomy in PWS and obese subjects during 12 months of follow-up

Methods

3 PWS (2 M; aged 15.9±4.4yrs; range 10.9-19.3) and 6 age matched obese controls (OB; 1 M; aged 15.6±2.8; range 10.5-18.5). PWS showed basal mean BMI 43.1±0.9, BMI SD 4.5±1.4, waist circumference 107±21 cm, HbA1c 44.7±8.3 mmol/mol, HOMA-IR 13.8±19.4. OB showed basal mean BMI 57.2±17.8 (p<0.05 vs PWS), BMI SD 7.5±2 (p<0.05 vs PWS), waist circumference 120±9.1 cm, HbA1c 36.4±2.4 mmol/mol, HOMA-IR 5.0±2.0 (p<0.01 vs PWS).

One PWS has Type 2 Diabetes treated with biguanides and GLP1 agonists and one OB showed Impaired Glucose Tolerance (IGT). None of pts was treated with GH. Ethic Committee and informed consents were obtained.

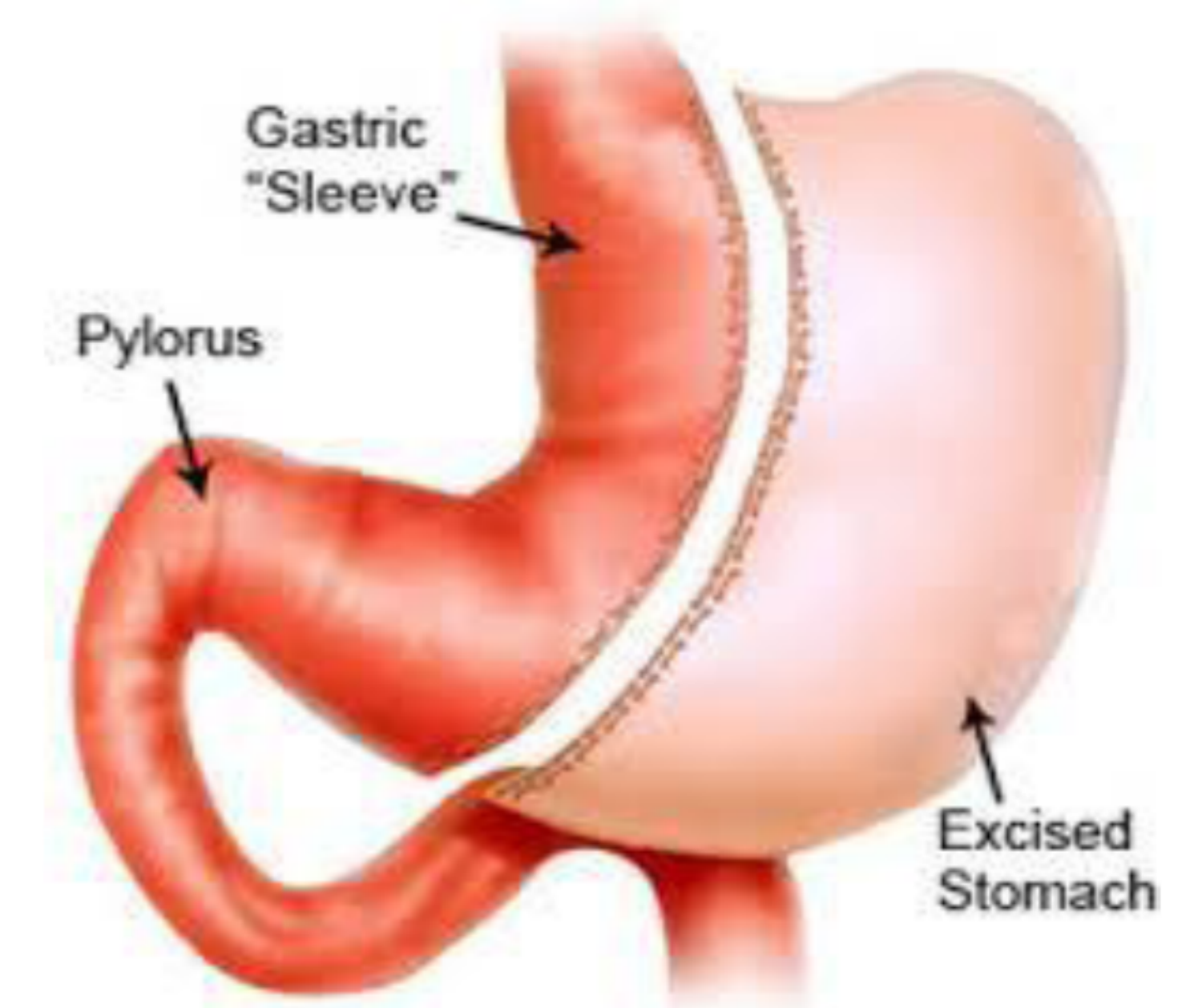
Results

After 12 months from surgery, PWS patient with Type 2 Diabetes normalized glycaemia and HbA1c and stopped therapy, as patient obese with IGT. One PWS patient did not lose weight during follow-up.

Basal parameters were not statistically different between PWS and OB subjects. After 1 year, as shown in Table, both PWS and OB showed statistically lowering of BMI and WC and improvement of insulin resistance (HOMA-IR), more evident in OB than PWS, although not statistically significant. HbA1c was statistically lower only in PWS population. (Table)

Only one obese patient developed reflux and vomiting controlled by diet and anti-reflux therapy.

Mean±SD	Before Surgery		12 months after surgery		p (0-12 months)	
	PWS	Obese	PWS	Obese	PWS	Obese
BMI (Kg/m ²)	43.1 ±0.9	57.2±17.8	37.6±4.6	39.5±7.4	<0.05	<0.05
BMI-SD	4.5 ±1.4	7.5±2	3.7±1.7	6.1±0.6	<0.05	<0.05
Waist circumference (cm)	107±21	120±9.1	98±15.5	106.8±8.8	<0.05	<0.05
HbA1C (mmol/mol)	44.7±8.3	36.4±2.4	38±6.2	33±1.7	<0.05	NS
HOMA-IR	13.8±19.4	5±2	2±0.9	3.5±2.3	<0.01	<0.05



Conclusion

Our data, although preliminary showed that sleeve gastrectomy in adolescent with PWS, as in obese patients, improve positively BMI, and may normalize glycemic control and insulin resistance. Statistically difference were found among parameters even though the sample is very small and there is widespread distribution of data. These results need to be confirmed on higher number of pts with a longer follow up.

