Published in final edited form as:

Obes Surg. 2009 May ; 19(5): 671–673. doi:10.1007/s11695-008-9742-1.

“Efficacy of Laparoscopic Sleeve Gastrectomy as a Stand-alone Technique for Children with Morbid Obesity” and “BioEnterics® IntraGastric Balloon for Treatment of Morbid Obesity in Prader-Willi Syndrome: Specific Risks and Benefits”

Ann Scheimann,

Johns Hopkins School of Medicine, Baltimore, MD, USA

Merlin G. Butler,

Kansas University Medical Center, Kansas City, KS, USA

David Stevenson,

University of Utah School of Medicine, Salt Lake City, UT, USA

Jennifer L. Miller,

University of Florida School of Medicine, Gainesville, FL, USA

Carmen Cuffari,

Johns Hopkins School of Medicine, Baltimore, MD, USA

William J. Klish

Baylor College of Medicine, Houston, TX, USA

To the Editor:

We read with great interest the recent articles by Till et al. [1] and DePeppo et al. [2], describing the use of bariatric procedures among individuals with Prader-Willi syndrome (PWS). PWS is a complex genetic disorder affecting an estimated 350,000–400,000 individuals worldwide and is considered one of the most common causes of life-threatening obesity [3].

The article by Till et al. reported an 8-year-old girl with PWS who underwent laparoscopic sleeve gastrectomy. Her preoperative body mass index (BMI) *z*-score was 4.43 and comorbidities included sleep apnea and glucose intolerance. At 9 months postprocedure, her BMI *z*-score had decreased to 3.67 [1].

The article by DePeppo et al. reported a series of 21 endoscopic BioEnterics® intraGastric balloon (BIB) placements in 12 patients with PWS (mean age 18.7±7 years) over a 5-year interval. The BIB remained in place for a mean of 8±1.4 months; patients received a calorie-restricted liquid diet. Approximately 42% of patients required more than one BIB placement at a mean interval of 12.2±7.7 months apart [2]. Significant improvements were noted in BMI and percent fat by DXA. There was one death 22 days post-BIB placement from gastric

perforation, manifest by halitosis and regurgitation after return to solids 1 week before, followed by eventual development of acute abdominal pain and hematemesis. A second patient developed similar symptoms 25 days post-BIB placement after 10 days of solid food, presenting with symptoms of nausea and abdominal pain, requiring laparotomy for removal of BIB and gastric phytobezoar. Two additional patients developed symptomatic gastric distension associated with consumption of food and carbonated beverages.

In both studies, the patients were closely followed in outpatient clinics with prescribed dietary plans and close nutritional monitoring. Based upon the data presented, the authors advocate the use of these procedures for weight reduction.

Despite the promising data on bariatric procedures presented in these articles, the information should be interpreted very cautiously. Unlike other obese patients, individuals with PWS have an underlying defect in satiety, altered pain threshold, and decreased ability to vomit [4, 5]. Loss of *neclin* protein expression among individuals with PWS is postulated to lead to abnormal neuronal differentiation and neuronal function [6], and lack of other paternally expressed genes from the 15q11–q13 region in PWS subjects may further impact eating behavior [3, 7]. Both series employ restriction of the gastric lumen as the primary mechanism for weight loss. In each scenario, there was close outpatient nutritional monitoring which likely included restriction to food accessibility. There is a very high rate of complications with BIB among individuals with PWS in comparison with the large series of BIB patients published by Genco et al. (4/21 vs 71/2,515; $p<0.001$) [8]. The child reported by Till has less than 1-year follow-up reported; conclusions raised are likely overly optimistic. Several cases of acute gastric dilatation followed by rupture and necrosis have been reported among individuals with PWS, attributed to abnormal gastric homeostasis [9, 10]. We have recently published a long-term review of published bariatric procedures among individuals with PWS and advocate the use of supervised hypocaloric diet with vitamin–mineral supplementation, exercise, and environmental modification [11].

References

1. Till H, Bluher S, Hirsch W, et al. Efficacy of laparoscopic sleeve gastrectomy (LSG) as a stand-alone technique for children with morbid obesity. *Obes Surg*. 2008;18:1047–9. [PubMed: 18459015]
2. DePeppo F, DiGiorgio G, Germani M, et al. BioEnterics intragastric balloon for treatment of morbid obesity in Prader-Willi syndrome: Specific risks and benefits. *Obes Surg* 2008. doi:10.1007/s11695-008-9509-8; Epub.
3. Butler MG, Hanchett JM, Thompson T. Clinical findings and natural history of Prader-Willi syndrome In: Butler MG, Lee PDK, Whitman BY, editors. *Management of Prader-Willi syndrome*. 4th ed New York: Springer; 2006.
4. Zipf WB, Bernston GG. Characteristics of abnormal food-intake patterns in children with Prader-Willi syndrome and study of affects of naloxone. *Am J Clin Nutr*. 1987;46:277–81. [PubMed: 3618531]
5. Holm VA, Cassidy SB, Butler MG, et al. Prader-Willi syndrome: consensus diagnostic criteria. *Pediatrics* 1993;91:398–402. [PubMed: 8424017]
6. Tennese AA, Gee CB, Wevrick R. Loss of the Prader-Willi syndrome protein *neclin* causes defective migration, axonal outgrowth and survival of embryonic sympathetic neurons. *Dev Dyn*. 2008;237:1935–43. [PubMed: 18570257]

7. Bittel DC, Butler MG. Prader-Willi syndrome: clinical genetics, cytogenetics and molecular biology. *Expert Rev Mol Me* 2005;7:1–20.
8. Genco A, Bruni T, Doldi SB, et al. BioEnterics intragastric balloon: the Italian experience with 2515 patients. *Obes Surg*. 2005;15:1161–4. [PubMed: 16197790]
9. Wharton RH, Wang T, Graeme-Cook F, et al. Acute idiopathic gastric dilation with gastric necrosis in individuals with Prader-Willi syndrome. *Am J Med Genet*. 1997;73:437–41. [PubMed: 9415471]
10. Stevenson DA, Heinemann J, Angulo M, et al. Gastric rupture and necrosis in Prader-Willi syndrome. *J Pediatr Gastroenter Nutr*. 2007;45:272–4.
11. Scheimann AO, Butler MG, Gourash L, et al. Critical analysis of bariatric procedures in Prader-Willi syndrome. *J Pediatr Gastroenter Nutr*. 2008;46:80–3.