

Functional Evaluation of Obese Patients with Symptoms of Fecal Incontinence Using Anorectal Electromanometry

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Abstract

Obesity is a modifiable risk factor to fecal incontinence (FI) and weight loss result in improvement in the frequency and severity of FI.

Introduction: Fecal incontinence (FI) has a multifactorial etiology and is most common in women. The prevalence is variable, though generally underestimated due to embarrassment. Since the incidence of pelvic floor disorders is higher among obese individuals, obesity may be considered a modifiable risk factor for FI. Weight loss seems to result in improvement in the frequency and severity of FI episodes. However, little has been published on FI in obese subjects and on its impact on quality of life in this patient population.

Objective: Perform functional evaluations of obese patients with FI using anorectal electromanometry and determine the incidence of anismus.

Materials and methods: Retrospective study including 58 obese subjects with FI aged 18-60 years. The patients were diagnosed clinically, and then submitted to physical examination followed by ARM.

Results: The sample included 58 obese patients with an average BMI of 35 kg/m² (range: 30-52). The female gender was predominant: n=44 (75.87%) vs. male n=14 (24.13%). The average age was 49 years (23-60), the average pressure at rest was 49 mmHg (8-94) and the average pressure during straining was 124 mmHg (34-263). Half the patients (50%) presented hypotonia at rest and/or during straining, and 45% had anismus.

Conclusion: Obesity is a modifiable risk factor for fecal incontinence, the etiology can be varied and needs to be established. In our results show that functional evaluation is necessary to determine the etiology of FI in obese patients and choose the best therapeutic approach in each case.

Keywords: Fecal incontinence; Obesity; Anorectal manometry; Quality of life

Introduction

Fecal incontinence (FI), a common condition of multifactorial etiology, is the involuntary expulsion of gases and/or feces or the inability to postpone defecation when desirable due to loss of sphincter control. FI affects both genders but is more prevalent among women, especially the elderly [1]. The overall prevalence is 0.4-18% [2-5], but the condition is often unreported due to embarrassment, despite significant loss of quality of life [5,6].

Fecal continence depends on the anatomical and functional integrity of the pelvic floor. Thus, a number of factors have been associated with FI [6]. The evaluation of patients with FI starts with a thorough clinical anamnesis and physical examination. In addition, a range of anorectal diagnostic techniques are available, chief among which are anorectal electromanometry (ARM) and anorectal

ultrasonography (AUS) [4]. The former is used to evaluate sphincter function [7] the latter to evaluate the anatomy [5].

A major public health concern of epidemic proportions, obesity is also a multifactorial condition [8,9]. It may be defined as an excessive accumulation of body fat associated with health risks and metabolic disorders. Obese subjects have an undesirable positive energy balance resulting in weight gain. In clinical practice and in epidemiological studies, obesity is usually quantified with the body mass index (BMI), estimated as the ratio between weight and height (kg/m²) [10].

Obesity is a modifiable risk factor for FI because obese subjects have higher incidences of pelvic floor dysfunctions [11]. Weight loss in obese women appear to result in improvements in both the frequency and severity of FI episodes. However, little research has been published on the impact of FI on the health and quality of life of obese subjects [12], but we do know from population-based observational studies that FI is approximately 50% more prevalent in obese than normal-weight women [13].

The aim of this study was to make a functional evaluation of obese patients with symptoms of fecal incontinence symptoms using anorectal electromanometry, and to determine the incidence of anismus in the series.

Materials and Methods

This retrospective study included 58 obese FI patients of both genders attending the coloproctology outpatient service of Hospital Sao Lucas (Cascavel, Parana, Brazil) between February 2012 and October 2013. The inclusion criteria were age between 18 and 60 years, a BMI of ≥ 30 and an FI score of 7-15 [14].

The patients were diagnosed clinically, and then submitted to physical examination followed by ARM. The evaluation was performed by two coloproctologists, with the patient in left lateral decubitus, without bowel preparation or digital examination, using an electromanometry equipment from Dynamed, model 8-channel device with water perfusion. The pressure was measured over the functional anal canal to 2 cm, using only the high pressure zone and static traction. The study parameters included pressure at rest (PR) (40-70 mmHg) and during straining (PS) (100-200 mmHg), rectosphincteric reflex (RSR) (present or absent), rectal sensitivity (10-50 ml) and capacity (180-300 ml) and presence/absence of anismus (evaluation of striated muscles during attempted defecation). The anismus was considered when the defecation effort all the striated muscles showed an increase compared to resting pressure. All criteria were evaluated by at least 3 times. In addition, information was collected on vaginal delivery and orificial surgeries.

Patients not meeting the inclusion criteria (age 18-60 years; BMI ≥ 30), or who declined participation, were excluded, as were patients with neoplasia, history of (or ongoing) radiotherapy, neurological disorders and inflammatory/infectious conditions.

The collected data were organized in tables and submitted to descriptive statistical analysis. All analyses were performed with the software Prims v.5.0.

The Student's t test and the Kruskal-Wallis test were applied comparing the variants. It was considered statistically significant when $p < 0.05$.

The patient information collected during the study period was kept confidential. The protocol was previously approved by the Research Ethics Committee (COPEX) of Faculdade Assis Gurgacz (FAG) (Cascavel, Paraná, Brazil) under entry #306/2013.

Results

The sample included 58 obese patients with an average BMI of 35 kg/m² (range: 30-52). The female gender was predominant: n=44 (75.87%) vs. n=14 (24.13%). The average age was 49 years (range: 23-60).

Thirteen patients (22.41%) had a history of orificial surgery and 9 patients (15.51%) suffered from constipation. Twenty-nine women (65.90%) had a history of vaginal delivery.

The ARM findings were as follows: average PR=49 mmHg (range: 8-94), hypotonia at rest (n=20; 34.48%, average 25 mmHg), hypertonia at rest (n=9; 15.51%, average 80 mmHg), average PS=124 mmHg (range: 34-263), hypotonia during straining (n=20; 34.48%, average 73 mmHg), hypertonia during straining (n=6; 10.34%, average 220mmHg), hypotonia at rest and during straining were finding in 26

patients (50%), presence of RSR (n=53; 91.37%), and undetermined RSR (n=5; 8.63%). Rectal sensitivity was 30 ml (range: 8-100) on the average <20 ml in 5 patients (8.62%) and >50 ml in 4 patients (6.89%). Rectal capacity was 193 ml on the average, <160 ml in 17 patients (29.31%) and >300 ml in 3 patients (5.17%). Anismus was identified on ARM in 26 patients (44.82%).

When comparing the group of patients with anismus and without anismus, there was a statistically significant difference with $p < 0.05$ when the student t test was applied.

When patients with hypotonia, hypertonia and normotonia were compared with regard to PR and PS using Kruskal-Wallis's test a significant difference ($p < 0.05$) was observed (Figures 1 and 2).

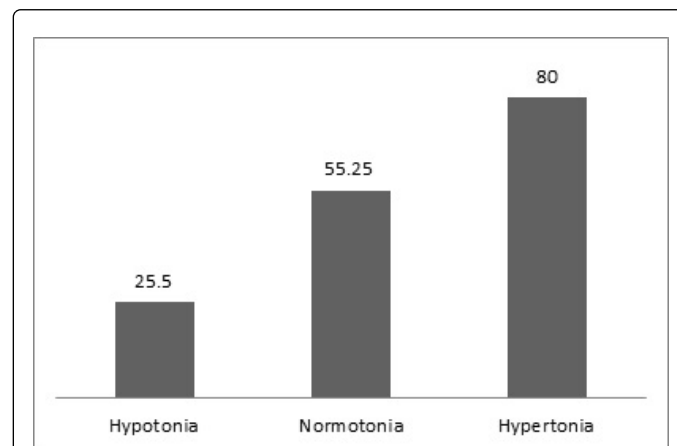


Figure 1: Average pressure at rest (mmHg) ($p < 0.001$).

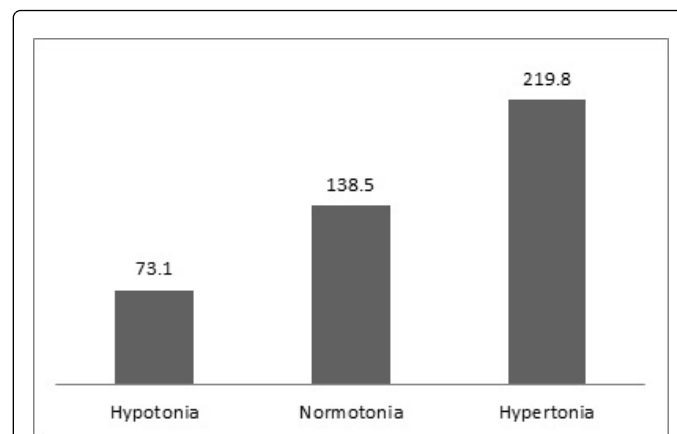


Figure 2: Average pressure during straining (mmHg) ($p < 0.001$).

Discussion

Though affecting mostly elderly women, the prevalence of FI in the general population is highly variable, with reports ranging from 0.4% to 18% [2-5]. The actual prevalence is likely higher than this since many cases remain unreported due to embarrassment. In any case, FI can seriously compromise patient's quality of life.

Obesity is a risk factor for IF, and this condition is almost 50% more prevalent in obese women compared with normal weight women

[1,15]. Most clinical studies are based on the assumption that chronically increased abdominal pressure characteristic of obesity favors the development of pelvic floor disorders (fecal and urinary incontinence and organ prolapse). Pressure-induced changes in the pelvic floor are known to cause structural damage and neurological injury, increasing the risk of FI [16]. Besides, obesity is a risk factor for diarrhea and accelerated colonic transit [17].

In a recent study obese women with FI displayed lower scores of physical and mental well-being. FI potentially compromises social life, thereby impacting patient's general mental quality of life.

Studies in overweight and obese women with urinary incontinence have shown that a modest (7-8%) weight reduction can improve the frequency of urinary incontinence [11]. Unlike urinary incontinence, the relation between FI and obesity has not been clearly established. However, in a study involving 256 morbidly obese women (BMI \geq 35) the prevalence of FI was 67% [18].

Likewise, a recent study found that women submitted to bariatric surgery followed by weight loss experienced improvements in urinary loss and in the frequency and severity of FI [19].

It was observed that morbidly obese patients evaluated for weight loss had a high prevalence (32%) of FI (of which liquid stools=21.1% and solid stools=8.8%). According to the authors, the results suggest that obesity may be one of the strongest modifiable independent risk factors for FI in women. In fact, in population-based observational studies, FI was approximately 50% more prevalent in obese than normal-weight women [20,21].

The relation between obesity and FI is supported by the fact that weight loss has been observed to improve the severity of FI, but the available evidence is insufficient to confirm the hypothesis. Further studies on the prevalence and risk factors of FI are necessary to increase awareness and lessen embarrassment associated with this disorder and provide better preventive and curative care.

Although bariatric surgery is the most effective treatment for morbid obesity, bariatric surgery patients are at risk of continuing or developing IF due to changes in stool consistency. In a study by Roberson et al. 2010, 48% of women and 42% of men after bariatric surgery reported incontinence for liquid stool, and 21% of women and 30% of men reported incontinence to solid stool. Risk factors for FI in obese after bariatric surgery include diarrhea and worsening diarrhea (disabsorptive surgeries), and also, this surgery can reveal weaknesses in previous continence mechanism [22]. Therefore, it is suggested that the obese patient, the questioning of the IF and the classification as its severity, addressing the patient in a multidisciplinary way.

In this study, we retrospectively evaluated 58 obese patients submitted to anorectal electromanometry and found sphincter hypotonia (at rest and/or during straining) in 50% with difference significantly between hypertonia and normotonia groups.

Much of it is related to sphincteric hypotonia (34, 48% isolated and 50% associated at rest and during straining), which is perfectly explicable. Some patients presented sphincteric hypertonia and, of these, 29% presented anismus. Others presented an AMR with normal parameters (38% with anismus), even with IF symptoms. This corroborates that the study of anorectal function in obese patients with IF is important to differentiate the treatment style to be proposed for each case. And that FI is not always related to sphincteric hypotonia. It is also noted in this series of patients that the age group affected is younger than studies in the general population. A prospective study

comparing patients with obese and non-obese IFs is necessary to establish the actual overweight impact factor in altering anorectal function.

Conclusion

Obesity is a modifiable risk factor for fecal incontinence the etiology can be varied and needs to be established. In our results show that functional evaluation is necessary to determine the etiology of FI in obese patients and choose the best therapeutic approach in each case.

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