



# Journal of Coloproctology

www.jcol.org.br



## Original Article

# There is an agreement between constipation referred and that documented by objective criteria?☆



Isaac José Felipe Corrêa Neto<sup>a,b,c,\*</sup>, Ana Luiza Chaves Maneira<sup>b</sup>,  
Noelle Breda Teixeira<sup>b</sup>, Beatriz Doine Vettorato<sup>b</sup>, Mariana Campello de Oliveira<sup>b</sup>,  
Tatielle Alves Trivelato Menezes<sup>b</sup>, Laercio Robles<sup>a,b,d</sup>

<sup>a</sup> Hospital Santa Marcelina, Departamento de Cirurgia Geral, Serviço de Coloproctologia, São Paulo, SP, Brazil

<sup>b</sup> Faculdade de Santa Marcelina, São Paulo, SP, Brazil

<sup>c</sup> Sociedade Brasileira de Coloproctologia, Brazil

<sup>d</sup> Colégio Brasileiro de Cirurgiões, Brazil

### ARTICLE INFO

#### Article history:

Received 24 February 2016

Accepted 11 April 2016

Available online 27 April 2016

#### Keywords:

Constipation

Rome criteria

Kappa index

### ABSTRACT

**Introduction:** Chronic constipation is the most common digestive complaint at the doctor's office, with high prevalence in the population. However, many patients – and even those physicians not so familiar with pelvic floor disorders – define and consider constipation based on intestinal functionality and stool consistency. But symptoms of incomplete defecation, digital maneuvers, abdominal discomfort, and straining should not be overlooked.

**Objectives:** To investigate the correlation between constipation referred and documented through objective criteria in patients admitted on a daytime-nursing ward basis at the Hospital Santa Marcelina, São Paulo.

**Methodology:** This is a prospective study of a random sample of patients admitted on a daytime-ward hospitalization basis at Santa Marcelina Hospital to perform minor surgical procedures not related to functional disorders of the gastrointestinal tract in the period from September 2014 to June 2015; the only exclusion criterion was “not agreed to participate in the interview conducted by students of medicine at Santa Marcelina Medical School”.

**Results:** 102 patients were randomly analyzed in the period considered (51% female) with a mean overall age of 48.6 (19–82) years. Constipation has been reported spontaneously by 17.6% of participants and denied by 82.4%. With the implementation of the Cleveland Clinic's criteria for the diagnosis of constipation, the compliance with the referred symptomatology

☆ Study conducted by the Academic League of General Surgery, Santa Marcelina Medicine School; and by the Medical Residency Program of Coloproctology, Department of General Surgery, Santa Marcelina Hospital, São Paulo, SP, Brazil.

\* Corresponding author.

E-mail: isaacneto@hotmail.com (I.J.F.C. Neto).

<http://dx.doi.org/10.1016/j.jcol.2016.04.004>

2237-9363/© 2016 Sociedade Brasileira de Coloproctologia. Published by Elsevier Editora Ltda. This is an open access article under the CC BY-NC-ND license (<http://creativecommons.org/licenses/by-nc-nd/4.0/>).

was 88.9%; the same value was found with the use of the Rome III criteria (Kappa = 0.665). In addition, a higher incidence of constipation was observed in female patients ( $p = 0.002$ ). **Conclusion:** A higher incidence of constipation was observed in female participants, with no statistical difference with respect to age. Furthermore, a substantial agreement was found between constipation referred and constipation documented through objective criteria.

© 2016 Sociedade Brasileira de Coloproctologia. Published by Elsevier Editora Ltda. This is an open access article under the CC BY-NC-ND license (<http://creativecommons.org/licenses/by-nc-nd/4.0/>).

## Existe concordância entre constipação referida e constatada por critérios objetivos?

### R E S U M O

#### Palavras-chave:

Constipação intestinal  
Critérios de Roma  
Índice de Kappa

**Introdução:** A constipação intestinal crônica representa a queixa digestiva mais comum no consultório com elevada prevalência na população. No entanto, frequentemente, os pacientes e mesmo os médicos, não são afetados com os distúrbios do assoalho pélvico, definem e consideram constipação baseados na funcionalidade intestinal e consistência das fezes. Entretanto, os sintomas de defecação incompleta, manobras digitais, desconforto abdominal e esforço evacuatório não devem ser negligenciados.

**Objetivos:** Verificar a correlação entre constipação intestinal referida e constatada através de critérios objetivos em pacientes internados em regime de enfermaria dia no Hospital Santa Marcelina, São Paulo.

**Metodologia:** Estudo prospectivo de amostra aleatória de pacientes internados em enfermaria dia do Hospital Santa Marcelina para realização de cirurgias de pequeno porte e não relacionadas a distúrbios funcionais de trato gastrointestinal no período entre setembro de 2014 e junho de 2015, cujo único critério de exclusão foi o não consentimento em participar da entrevista realizada pelos alunos do curso de medicina da Faculdade Santa Marcelina.

**Resultados:** Foram analisados de forma aleatória 102 pacientes no período sendo 51% do sexo feminino e média de idade global de 48,6 anos (19-82 anos). A constipação foi referida de forma espontânea em 17,6% e negada em 82,4%. Ao se utilizar o critério da Cleveland Clinic para constatar constipação houve uma concordância com o sintoma referido fora de 88,9%, com mesmo valor ao se utilizar os critérios de Roma III (Kappa = 0,665). Além disso, verificou-se maior incidência de constipação intestinal nos pacientes do sexo feminino ( $p = 0,002$ ).

**Conclusão:** Verificou-se maior incidência de constipação no sexo feminino sem diferença estatística baseado na idade. Além disso, constatou-se concordância substancial entre a constipação referida e a documentada através de critérios objetivos.

© 2016 Sociedade Brasileira de Coloproctologia. Publicado por Elsevier Editora Ltda. Este é um artigo Open Access sob uma licença CC BY-NC-ND (<http://creativecommons.org/licenses/by-nc-nd/4.0/>).

## Introduction

Chronic constipation is the most common digestive complaint in the general population, with high prevalence,<sup>1</sup> affecting 16% of adults and up to 33% of those aged above 60 years,<sup>2</sup> especially female subjects.<sup>3</sup> Consequently, this is a morbidity that implies a large number of visits for medical care, although in most cases there is no threat to the patient's life nor debilitation, but with a change in his/her quality of life, especially in chronic cases.<sup>2,4</sup>

Constipation is classified into primary and secondary types. In a primary constipation, one can verify a normal intestinal transit, outlet obstruction, or a slow colonic transit. On the other hand, the secondary type of constipation is caused by a metabolic disease or may have a mechanical,

pharmacological or psychiatric cause.<sup>5,6</sup> Moreover, the main risk factors for constipation are already known: aging, female gender, depression, inactivity, low caloric intake, low income and low educational level, physical and sexual abuse, and previous surgeries.<sup>6</sup>

Often the patient – and even that physician not so familiar with pelvic floor disorders – defines and considers constipation based on intestinal functionality and stool consistency.<sup>7</sup> But symptoms of incomplete defecation, digital maneuvers, abdominal discomfort and straining should not be overlooked.<sup>8</sup>

Thus, in order to standardize the diagnosis and management of constipation, researchers described objective data in order to ascertain (or not) the morbidity by Rome I, II, III criteria<sup>9-11</sup> and by the Cleveland Clinic constipation index.<sup>12</sup>

**Purpose**

This study aimed to verify the correlation between referred versus documented constipation according to objective criteria in patients admitted on a daytime-ward hospitalization basis at Santa Marcelina Hospital, São Paulo.

**Patients and method**

This is a prospective study in which a random sample of patients admitted on a daytime-nursing ward basis at Santa Marcelina Hospital to perform minor surgical procedures not related to functional disorders of the gastrointestinal tract were interviewed during the period from September 2014 to June 2015.

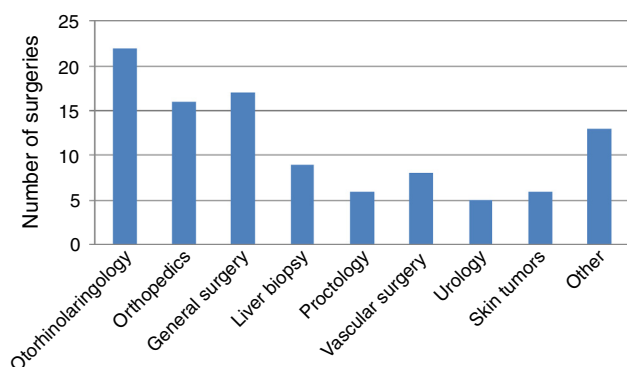
The only exclusion criterion was “not agreed to participate in the interview conducted by students of medicine at Faculdade Santa Marcelina”.

The surveyed data were: gender, age, comorbidities, and parity. After this general interview, patients were asked to tell whether or not they had constipation and, at that time, only an answer “yes” or “no” was accepted. After this spontaneous report of the complaint, a targeted anamnesis was carried out, through the utilization of the Rome III criteria,<sup>10</sup> the Cleveland Clinic constipation index, Florida<sup>11</sup> and stool consistency.<sup>13</sup>

**Results**

Regarding gender, 51% were female and the mean overall age was 48.6 (19–82) years, with a mean of 48.2 and 48.9 years for males and females, respectively. Twenty-nine percent and 6% of female and male participants, respectively, had constipation ( $p=0.002$ ). Moreover, when stratifying the age in groups of <20 years, 20–60 years and >60 years, no statistically significant difference was found between these subgroups with respect to the incidence of constipation ( $p=0.576$ ) (Fig. 1).

Of the 18 patients who reported constipation, 15 (83.3%) were female, 4 were nulliparous (26.7%) ( $p=0.036$ ) and the mean age was 51.6 years (Table 1). When stratifying the age of constipated patients, a mean of 48 and 66.3 years was found for female and male subjects, respectively. In this subgroup, only two (1.9%) patients had comorbid conditions with a risk factor for constipation (hypothyroidism).



**Fig. 1 – Distribution of surgical procedure types.**

**Table 1 – Clinical characteristics of interviewed subjects.**

|                         | Non-constipated | Constipated  |
|-------------------------|-----------------|--------------|
| Female                  | 71.2%           | 28.8%        |
| Male                    | 94%             | 6%           |
| Mean global age         | 47.9 years      | 51.6 years   |
| Nulliparous women       | 21.1%           | 26.7%        |
| Bristol <sup>13</sup>   | Most 3 and 4    | Most 1 and 2 |
| Agreement with criteria | 90.5%           | 88.9%        |

Constipation has been referred spontaneously in 17.6%, and 82.4% denied this condition. When using the Cleveland Clinic criteria<sup>12</sup> for the establishment of constipation, an agreement of 88.9% was achieved with that symptom, and the same value was obtained using the Rome III criteria<sup>11</sup> (Kappa = 0.665). An agreement of 90.5% was achieved between the referred denial for constipation versus absence of constipation with the application of the Rome III criteria. Regarding stool consistency,<sup>13</sup> 67.5% of respondents reported type 3 or 4. On the other hand, among the constipated patients 69% reported type 1 or 2.

**Discussion**

The prevalence of constipation is variable in the literature, depending mainly on the age chosen to obtain these values. Thus, it is known that this variation covers 2–35% of the population, with a mean of 2.5 million clinical consultations a year.<sup>14–16</sup> Moreover, the prevalence is higher in females (this was also demonstrated in our study), institutionalized persons, and in the elderly.<sup>6,17</sup>

Obtaining a history of constipation of a patient is a debatable topic with regard to what are the auxiliary means to be used in the decision-making process. However, with the completion of a detailed history, one can determine if, in fact, the patient meets the objective criteria of constipation, as established by the Rome or the Cleveland Clinic criteria (cited above). Moreover, the physician can infer whether he/she is facing a case suggestive of outlet obstruction, by determining the occurrence of multiple bowel movements and small fecal volumes, a feeling of incomplete evacuation, and the need to a digital (perineal, anal or vaginal) maneuver, as well as the feeling of vaginal bulging during evacuation.<sup>18,19</sup>

The clinical history also enables an assessment of risk factors, such as poor diet, low fluid intake, immobility, psychiatric illness, medication use, comorbidities, previous surgery, and symptoms of irritable bowel syndrome.<sup>15,20,21</sup> Finally, the clinical history allows the identification of warning signs such as hematochezia, a significant weight loss, a family history of cancer, anemia, anal bleeding, and a change in bowel habits – indicating the timeliness of a colonic study by colonoscopy and/or some radiological procedure without propeudetic intent with respect to constipation, but in order to exclude secondary causes for this condition.<sup>3</sup>

Thus, when obtaining a clinical history, the questioning for constipation can be accomplished in a self-referred manner and also by objective criteria. It is known that the self-referred strategy may be influenced by social custos; in addition, the patient can consider as constipation the eventual use of laxatives and the occurrence of an abdominal colic, this way

adopting the definition of the pathology in accordance with what he/she believes to be an adequate bowel habit.<sup>22</sup>

On the other hand, the Rome consensus<sup>11</sup> and the constipation index<sup>12</sup> have been developed in order to standardize the definition of constipation in epidemiological studies, and also for the diagnosis of this condition in clinical practice.

Collette et al.,<sup>21</sup> in their demographic survey for the presence of constipation in the population of Pelotas, RS, found a prevalence of 26.9%, more often occurring in women; and an involvement of 37% among those individuals with a lower socioeconomic status. These authors also showed that the correlation between self-reported constipation and the establishment of constipation according to the Rome III consensus achieved an overall Kappa index of 0.59 (0.41 for men and 0.61 for women). In this same line, Garrigues et al.<sup>23</sup> demonstrated a substantial agreement between self-reported constipation and the Rome I criteria (Kappa=0.68) and a moderate agreement when using the Rome II criteria (Kappa = 0.55), concluding in favor of the usefulness of self-reported information of constipation by the interviewee, notwithstanding its subjective nature and reliance on multiple factors.

In our study, we found a significant correlation between constipation referred and that established through objective criteria, with a Kappa index of 0.665, and the female involvement with constipation was similar to that in the literature, as well as the evidence that the vast majority of constipated patients were women – a finding with statistical significance ( $p=0.002$ ). However, when stratifying the age in groups <20 years, 20–60 years, and >60 years, no statistically significant difference between these subgroups was found with respect to the incidence of constipation ( $p=0.576$ ).

Although the prevalence of constipation in male patients has been quite low, the male subjects in our sample were more aged versus females. This finding is similar to data from some published studies, showing that women are affected by this morbidity in an earlier age.<sup>21,24</sup>

## Conclusion

In the present study, a predominance of constipation in women was noted, without difference in terms of mean age between constipated versus non-constipated patients. Furthermore, there was a substantial agreement between constipation referred and that documented by objective criteria.

## Conflicts of interest

The authors declare no conflicts of interest.

## REFERENCES

- Sonnenberg A, Koch TR. Physician visits in the United States for constipation: 1958 to 1986. *Dig Dis Sci.* 1989;34:606–11.
- Bharucha AE, Dorn SD, Lembo A, Pressman A. American gastroenterological association medical position statement on constipation. *Gastroenterology.* 2013;144:211–7.
- Bharucha AE, Pemberton JH, Locke GR III. American gastroenterological association technical review on constipation. *Gastroenterology.* 2013;144:218–38.
- Tack J, Muller-Lissner S, Stanghellini V, Boeckxstaens G, Kamm MA, Simren M, et al. Diagnosis and treatment of chronic constipation: a European perspective. *Neurogastroenterol Motil.* 2011;23:697–710.
- Camilleri M. Peripheral mechanisms in irritable bowel syndrome. *N Engl J Med.* 2012;367:1626–35.
- Lindberg G, Hamid S, Malferteiner P, Thomsen O, Fernandez LB, Garisch J, et al. Constipação: uma perspectiva mundial. *World Gastroenterology Organisation Practice Guidelines.* 2010:1–15.
- Oliveira JC, Albuquerque FRPC, Lins IB. *Projeção da população do Brasil por sexo e idade para o período de 1980-2050–Revisão 2004.* Rio de Janeiro: IBGE; 2004.
- Sandler RS, Drossman DA. Bowel habits in young adults not seeking health care. *Dig Dis Sci.* 1987;32:841–5.
- Thompson DG, Drossman DA, Heaton KW, Kruis W. Irritable bowel syndrome: guidelines for the diagnosis. *Gastroent Int.* 1989;2:92–5.
- Drossman DA. The functional gastrointestinal disorders and the Rome II process. *Gut.* 1999;45 Suppl. 2:II1–5.
- Longstreth GF, Thompson WG, Chey WD, Houghton LA, Mearin F, Spiller RC. Functional bowel disorders. *Gastroenterology.* 2006;130:1480–91.
- Agachan F, Chen T, Pfeifer T, Reisman P, Wexner SD. A constipation scoring system to simplify evaluation and management of constipated patients. *Dis Colon Rectum.* 1996;39:681–5.
- Lewis SJ, Heaton KW. Stool form scale as a useful guide to intestinal transit time. *Scand J Gastroenterol.* 1997;32:920–4.
- Adibi P, Behzad E, Pirzadeh S, Mohseni M. Bowel habit reference values and abnormalities in young Iranian healthy adults. *Dig Dis Sci.* 2007;52:1810–3.
- Corazziari E. Definition and epidemiology of functional gastrointestinal disorders. *Best Pract Res Clin Gastroenterol.* 2004;18:613–31.
- Peppas G, Alexiou VG, Mourtzoukou E, Falagas ME. Epidemiology of constipation in Europe and Oceania: a systematic review. *BMC Gastroenterol.* 2008;8:5.
- Kinnunen O. Study of constipation in a geriatric hospital, day hospital, old people's home and at home. *Aging (Milano).* 1991;3:161–70.
- Mellgren AF, Zetterstrom J, Lopez A. Recoele. In: Wexner SD, Zbar AP, Pescatori M, editors. *Complex anorectal disorders: investigation and management.* London: Springer-Verlag; 2005. p. 446–60.
- Acosta A. Camilleri Elobixibat and its potential role in chronic idiopathic constipation. *Ther Adv Gastroenterol.* 2014;7:167–75.
- Hutchinson R, Kumar D. Colonic and small-bowel transit studies. In: Wexner SD, Bartolo DC, editors. *Constipation: etiology evaluation and management.* Oxford: Butterworth-Heinemann Ltd.; 1995. p. 52–62.
- Collette VL, Araújo CL, Madruga SW. Prevalência e fatores associados à constipação intestinal: um estudo de base populacional em Pelotas, Rio Grande do Sul, Brasil, 2007. *Cad Saúde Pública.* 2010;26:1391–402.
- Talley NJ. Definitions epidemiology, and impact of chronic constipation. *Rev Gastroenterol Disord.* 2004;4 Suppl. 2:S3–10.
- Garrigues V, Galvez C, Ortiz V, Ponce M, Nos P, Ponce J. Prevalence of constipation: agreement among several criteria and evaluation of the diagnostic accuracy of qualifying symptoms and self-reported definition in a population-based survey in Spain. *Am J Epidemiol.* 2004;159:520–6.
- Dukas L, Willett WC, Giovannucci EL. Association between physical activity, fiber intake, and other lifestyle variables and constipation in a study of women. *Am J Gastroenterol.* 2003;98:1790–6.