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Original Article

Factors associated with abdominal pain in patients submitted to colonoscopy[☆]

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ABSTRACT

Objective: The study evaluated factors associated with abdominal pain during colonoscopy.

Methods: This was a cross-sectional observational study that evaluated patients who underwent colonoscopy between February 2014 and February 2015. Physical characteristics, surgical history and previous colonoscopies, indication and current examination conditions, fentanyl and midazolam dose, and pain level were analyzed. Significance level adopted: $p < 0.05$. Chi-squared test was used for association of categorical variables, Student's t-test was applied for comparison of means, and Spearman's coefficient was used for correlation. **Results:** A total of 566 women and 391 men with mean age of 54.81 years and mean BMI of 27.064 were evaluated. Of the total, 29 (3.0%) had mild pain, 42 (4.4%) had moderate pain, and 18 (1.9%) had severe pain. Women were less tolerant ($p = 0.011$) and had longer cecal intubation times ($p = 0.001$). Mean duration of colonoscopy and mean dose of midazolam were higher in patients with pain ($p = 0.001$), ($p < 0.001^*$). Among the 39 patients with an incomplete examination, 8 reported pain ($p = 0.049$).

Conclusion: Female gender and prolonged intubation time were significantly associated with abdominal pain during colonoscopy. Patients with discomfort had a higher failure rate on the exam. Additional doses of midazolam given to patients with pain were not effective.

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Fatores associados à dor abdominal em pacientes submetidos à colonoscopia

RESUMO

Objetivo: O estudo avaliou fatores associados à dor abdominal durante a colonoscopia.

Métodos: Estudo observacional transversal, que avaliou pacientes que realizaram colonoscopia entre Fevereiro de 2014 e Fevereiro de 2015. Analisou-se características físicas,

Palavras-chave:

Colonoscopia

Sedação consciente

[☆] Study conducted at the Clínica Pró-Vida, Serviço de Endoscopia e Colonoscopia, Tubarão, SC, Brazil.

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Dor abdominal
Sedação

histórico cirúrgico e colonoscopias prévias, indicação e condições do exame atual, dose de fentanil e midazolam e nível de dor. Nível de significância adotado: $p < 0,05$. Utilizou-se teste Qui-quadrado para associação de variáveis categóricas, teste t de Student para comparação de médias e coeficiente de Spearman para correlação.

Resultados: Avaliou-se 566 mulheres e 391 homens, com média de idade de 54,81 anos e IMC médio de 27,064. Do total, 29 (3,0%) tiveram dor leve, 42 (4,4%) dor moderada e 18 (1,9%) dor intensa. As mulheres foram menos tolerantes ($p = 0,011$) e tiveram maior tempo de intubação cecal ($p = 0,001$). A duração média da colonoscopia e dose média de midazolam administrada foram maiores nos pacientes com dor ($p = 0,001$), ($p < 0,001^*$). Entre os 39 pacientes com exame incompleto, 8 relataram dor ($p = 0,049$).

Conclusão: Gênero feminino e tempo de intubação prolongado tiveram associação significativa com dor abdominal durante a colonoscopia. Pacientes com desconforto tiveram uma taxa maior de insucesso no exame. Doses adicionais de midazolam administradas nos pacientes com dor não foram efetivas.

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Introduction

Colonoscopy is the most accurate examination for the diagnosis and follow-up of colorectal diseases since this procedure allows a complete evaluation of mucosae of the whole large intestine and distal terminal ileum.¹ In order to obtain an effective, good quality examination, what is needed is to count on an experienced endoscopist, an adequate preparation of the colon, and patient cooperation under effective analgesia and sedation.²⁻⁴

In order to perform the endoscopic procedure, the patient is submitted to a moderate sedation of the "conscious" type, in which the condition of a response to verbal and tactile stimuli persists, and the cardiovascular and respiratory systems remain with their spontaneous functions.^{5,6} Among the characteristics of sedation during colonoscopy, those with an immediate effect stand out; sedation should last just the time of examination and the procedure should provide a rapid recovery of the patient, causing little or no side effect.⁶ In view of these premises, benzodiazepine agents (which reduce anxiety and sedate the patient) are routinely used in association with opioids (responsible for analgesia during the examination).⁷ In addition, conscious sedation with benzodiazepines and opioids is a lower-cost alternative when compared to intravenous sedation performed with propofol, a hypnotic agent widely used to perform endoscopic procedures. This drug promotes deep sedation and brings a greater risk of side effects, for example, respiratory depression.⁸

Several factors are related to the greater probability of occurrence of pain during colonoscopy; such factors may be intrinsic to the patient or may be of an external order. Some of these factors are: very young or advanced age, female gender, low body mass index (BMI), previous abdominal or pelvic surgery, poor colonic preparation, insufficient sedation, the formation of loops, and high pressure of the air inflated to promote colonic distension.⁹

The aim of this study was to identify factors related to the patient and to the examination that could be associated with the occurrence of abdominal pain during colonoscopy, as well

as an evaluation of the level of pain presented by the patients and the efficacy of conscious sedation.

Methods

The present study, of the observational type with a cross-sectional design, was approved by the Research Ethics Committee of the Universidade do Sul de Santa Catarina under opinion 875.131, CAAE 36089414.5.0000.5369, according to the norms of the Conselho Nacional de Saúde for research involving human beings, resolution 466/2012.

Patients who underwent elective colonoscopy between February 2014 and February 2015 by the Endoscopy and Colonoscopy Service of a private polyclinic from a city in the South of Brazil, which attends private health plans and consultations, were evaluated. The study started in February 2015 and ended in November 2015.

All patients who were attended on an outpatient basis and who underwent colonoscopy were included in this study. Patients who needed an emergency examination or who underwent deep sedation were excluded from the study.

All patients received a no-residue diet the day before the test, followed by a 12-hour fast. On the day of colonoscopy, colonic preparation was performed with a balanced solution of polyethylene glycol, 1000 mL PO, 4 h before the test, in combination with the antiemetic agent ondansetron, 8 mg PO.

For patient sedation and analgesia, participants received midazolam 0.1 mg/kg body weight and fentanyl 1 mcg/kg body weight intravenously immediately prior to the test. In patients over 70 years, the initial dose of midazolam administered was 0.05 mg/kg IV. The medications were administered simultaneously; a second dose of midazolam was given in cases where the patient developed pain (usually half the initial dose: 0.05 mg/kg body weight). Monitoring of vital signs was done with pulse oximetry, and where necessary, supplementation of oxygen under the mask was performed. Sedation and monitoring were performed by the four endoscopists participating in the study, all of them professionals with more than 10 years

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