

Pain and anxiety in office hysteroscopy

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SUMMARY

BACKGROUND: Anxiety is almost always present before medical interventions and may play a role in pain perception. We aim to evaluate factors associated with pain intensity reported by patients submitted to Office Hysteroscopy (OH).

METHODS: Cross-sectional observational study, with data from April to November 2015. It included patients attended at the Assis Chateaubriand Maternity School (MEAC/UFC) with an indication of office hysteroscopy. Before the examination, the patients answered a validated questionnaire about anxiety (STAI). After the examination, women answered the Visual Analogue Scale (VAS). The data were analyzed using the Statistical Package for the Social Sciences (SPSS) 15.0, with Spearman correlation, Mann-Whitney U-test, and analyses of variance.

RESULTS: 252 patients were included, with a mean age of 45.7 years, of whom 29% were postmenopausal (mean pain 5.5) and 71% were in menacme (mean pain 5.1) ($p = 0.258$). The anxiety trait and state showed a significant influence on the pain scale ($p < 0.001$ and $p = 0.001$), but age or endometrial sample did not. 27% of the patients were nulliparous. Less pain was associated with the number ($p = 0.01$) and vaginal ($p = 0.005$) of deliveries. The main indication for the procedure was abnormal uterine bleeding (54.4%).

CONCLUSION: OH may be associated with moderate but tolerable discomfort. There was a significant correlation between higher scores on the pain scale and anxiety. There was evidence of reduced pain with parity and type of delivery, but not with reproductive age or endometrial biopsy.

KEYWORDS: Pain Measurement. Manifest Anxiety Scale. Hysteroscopy.

INTRODUCTION

Hysteroscopy represents the gold standard for the evaluation of the uterine cavity and adequate endometrial sampling due to its minimal invasiveness and high diagnostic success rate¹. Hysteroscopy can be performed in the outpatient department, without anesthesia. Office hysteroscopy (OH) is becoming increasingly

popular, with the use of the minihysteroscope with a vaginoscopic and no-touch approach, leading to less painful and better-tolerated examinations and even operations^{2,3}.

In general, this procedure is very safe and well-tolerated by patients. Nevertheless, thinner

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scopes do not guarantee a painless procedure, as some women still report significant suffering. Yang and Vollenhoven⁴ reported that pain is the most common reason for failing to perform OH. Potential factors associated with pain perception during this procedure include the diameter of the scope, medical experience, age, and anxiety of the patient. Therefore, some factors may contribute to the selection of women candidates for analgesia, due to the greater susceptibility to severe pain during the outpatient procedure⁵.

Anxiety is almost always present before medical interventions and may play a role in pain perception. There seems to be a positive association between the anxiety level and visual analog scale (VAS) pain reporting, and in some cases, nervousness may lead to catastrophizing (exaggerated negative orientation toward pain stimuli). There are some validated scales widely used to measure the general anxiety level. Nonetheless, the effect of anxiety on pain perception during OH has not been well-defined yet^{3,6,7}.

In view of the lack of regional studies on the tolerance of OH, we sought to evaluate factors associated with the level of pain reported by patients submitted to OH in a tertiary hospital in the northeast of Brasil, as well as to observe the influence of women's anxiety during the examination.

METHODS

This is an observational, cross-sectional, descriptive study based on data collected from April 2015 to November 2017. The study population consecutively included all women who attended the gynecology department of the Assis Chateaubriand Maternity School (MEAC), Federal University of Ceará (UFC), with an indication for OH. Patients with contraindications for the examination (gestation, cervicitis, genital bleeding, and acute pelvic inflammatory disease) were excluded, in addition to those who had previously had analgesics or any other cervical preparation, were under 18 years of age, were intellectually incapable of answering the questionnaire, or voluntarily manifested the desire not to participate in the study.

Clinical and demographic information were obtained from each participant during a medical interview. Immediately before the examination, the patients answered a validated self-assessment questionnaire about anxiety (STAI)⁸, through the

reduced Portuguese version of Spielberger STAI-Static Anxiety Inventory (STAI)^{9,10}. The STAI was introduced in 1970 and revised in 1983, with questions on a 1 to 4 Likert scale, and is among the most widely researched measure of general anxiety, available in many different languages. It gives a score of 20-80, and the higher the score, the greater the anxiety. One of its particularities is to differentiate the state anxiety (STAI-S), which evaluates the current state of anxiety, asking how women feel "right now," from a patient's trait anxiety (STAI-T), which evaluates relatively stable aspects of propensity to be anxious. The short-form version consists of 6 self-reported items with high internal consistency alpha coefficients.

All the examinations were carried out in an ambulatory setting without analgesia or anesthesia, during in the first phase of the menstrual cycle, for women in the menacme, by surgeons with different experiences in OH. Participants were positioned in the gynecological position. A 2.9mm rigid hysteroscope was introduced under direct vision into the uterine cavity (Karl Storz, Tuttlingen, Germany). The distension medium used was 0.9% saline solution with a continuous flow and intrauterine pressure of 75mmHg, controlled by an electronic pump (Karl Storz Endoskope®, Hysteromat, Germany). The image was transmitted in real-time to a monitor, allowing the patient to watch the examination. Endometrial biopsies were performed with a Novak curette, if necessary. OH lasted between 15 to 30 minutes.

After the procedure, women answered the VAS, a one-dimensional instrument for the evaluation of pain intensity. Pain rating according to a 0-10 cm VAS (0-3 mild pain, 4-7 moderate pain, 8-10 severe pain) is recommended by World Health Organization¹¹.

Quantitative data are presented as mean and standard deviation. Spearman's correlation, Mann-Whitney U-test, and analyses of variance were used to verify the relationship between the intensity of pain perception and other variables in the sample. p-values <0.05 were considered significant. All statistical analyses were performed with the software Statistical Package for Social Sciences (SSPS) 22.

This work was approved by the Research Ethics Committee - CEP of the Assis Chateaubriand Teaching Maternity Hospital under protocol 934.442 of 1/14/2015. The patients signed a Free and Informed Consent Form to participate in the study.

RESULTS

The study included 252 patients, with a mean age of 45.7 ± 10.8 years old, and a mean pain of 5.6 ± 3.2 , according to the VAS. 29% of women were post-menopausal. Age and menopausal status were not associated with mean pain ($p= 0.99$ and 0.26 , respectively). 27% of the patients were nulliparous. Pain was associated with the number ($p=0.01$) of deliveries. Regarding the type of delivery, 51.1% of women had at least 1 vaginal delivery and reported less pain ($p=0.005$) (Table 1)

TABLE 1. MEAN PAIN SCORE AFTER OH, ACCORDING TO PATIENT CHARACTERISTICS.

Characteristics	Pain (VAS 0 - 10)	P-value
Menopause		
Yes	5.5 ± 3.0	0.258
No	5.1 ± 2.9	
Previous vaginal delivery		
Yes	4.3 ± 2.8	0.005*
No	5.9 ± 2.9	
Endometrial biopsy		
Yes	5.1 ± 2.8	0.374
No	5.5 ± 3.3	

Note: Data expressed as mean \pm standard deviation; VAS: Visual Analogic Scale Mann-Whitney U test;*Significance considered $p \leq 0.05$

The main indications for the procedure were abnormal uterine bleeding (54.4%) and endometrial thickening (31.4%). 66.9% of patients underwent an endometrial biopsy with a mean pain of 5.1 ± 2.8 . There was no correlation between the biopsy procedure and the VAS ($p= 0.37$). There were no cases of carcinoma in the samples.

Pain perception during hysteroscopy was categorized into three groups according to VAS (slight, moderate or intense pain): (1) <4 , with 105 cases (41.7%); (2) ≥ 4 and ≤ 7 , with 75 cases (29.8%); and (3) >7 , with 72 cases (28.6%).

Mean state anxiety (STAI-S) was 47.6 ± 0 , while mean trait anxiety (STAI-T) was 43 ± 15 , on a 0 to 80

scale. The pain reported by VAS was correlated to both scales of anxiety (Table 2).

There was a positive correlation between the VAS and STAI-S ($r=0.21$, $p=0.01$) and between the VAS and STAI-T ($r=0.28$, $p<0.001$).

DISCUSSION

The mean pain reported by the patients in this study, according to the VAS, was 4.5, thus considered mild to moderate, but with tolerable discomfort. The main complaint of patients submitted to OH is pain, a factor that limits the success of the examination⁴. The pain scale used is quick to apply and easily understood by the patient. For the VAS evaluation, scores of 2.5 to 3 were considered the upper limit score for mild pain, and scores above the upper limit of the VAS of 6.5 to 7 defined pain as severe¹². However, as a one-dimensional instrument, it only analyzes the intensity of pain. The mean pain index values shown for OH have conflicting results in different populations and regions of the world, ranging from 1.8 to 6.02^{7,8,13-18}. This may be due to different service experiences combined with the higher prevalence of normal births in some countries in relation to the Brazilian population.

In previous studies with mixed populations and different indications of hysteroscopy, a wide range of women referring to a VAS ≥ 4 was observed, varying from 21% to 88%^{17,19}. We found 58.4% of women with a VAS ≥ 4 . Several factors can influence these results, including reproductive status, distension medium, and surgeon experience. Such findings confirm that hysteroscopy is a painful examination in a considerable number of cases. Patients may experience pain as a result of physical stimuli such as intrauterine pressure and manipulation. However, pain is subjective; its perception is modulated by states of mood and emotion¹³. In fact, patient support has been linked to less pain and anxiety^{6,20,21}.

TABLE 2. COMPARISON OF PAIN IN GROUPS OF PATIENTS UNDERGOING HYSTEROSCOPY AFTER STRATIFICATION OF PAIN INTENSITY LEVELS IN SUBGROUPS: SLIGHT, MODERATE, OR INTENSE

Variables	Pain intensity			p
	Slight pain (0-3) N=105	Moderate pain (4-7) N=75	Intense pain (8-10) N=72	
Age (years)	46.1 ± 9.9	44.8 ± 11.2	45.9 ± 10.8	0.857
STAI-S	43.8 ± 15.5	45.9 ± 12.6	51.2 ± 14.0	0.009*
STAI-T	38.6 ± 14.6	43.8 ± 13.6	48.9 ± 15.5	$<0.001^*$

Note: Data expressed as mean \pm standard deviation ANOVA;*Significance considered $p \leq 0.05$

In this study, the anxiety trait and state showed a significant correlation with the pain scale completed after the procedure. The mean STAI-S and STAI-T were above 40, which is higher than the score of the Brazilian female population (mean: 35.7) and suggests a moderate level of anxiety before the examination, similar to other studies. It has been suggested that scores of 39 to 55 are indicative of clinically significant anxiety^{7,12,20,22}.

Patients' anxiety about medical appointments may influence the perception of pain, the success rate, and satisfaction^{13,23}. The effect of the anxiety state on pain has been suggested in some previous studies^{7,21}, but not in others^{20,22}. It is difficult to explain these conflicting results due to the heterogeneity of the studies and population, but it is important to notice that there is a high prevalence of women presenting moderate levels of anxiety before hysteroscopy.

Based on this context, efforts should be made to identify predictors or interventions that may assist in identifying individuals at greater risk of anxiety and preventing/limiting anxiety and its consequences. Providing a greater degree of comfort during the examination, such as by offering the patient a detailed explanation of the method, for example, can be an important pain reduction strategy.

Parity and previous vaginal delivery were associated with less pain in OH in this study. There is no consensus on the history of normal delivery as a variable capable of determining pain reduction. It has shown a great impact on pain reduction in a clinical trial with multivariate analysis¹⁷. In Brasil, a country with a high cesarean rate in the health system, the use of strategies capable of reducing pain regardless of the obstetric history has a good acceptance²⁰.

Although there is evidence that genital atrophy may make it difficult to perform the examination, the findings of this study do not support such claims¹⁷. Age did not influence the pain level among the women analyzed. The main indications for hysteroscopy in the present study were abnormal uterine bleeding, endometrial thickening, and myomatosis, and most of the women were pre-menopausal.

The performance of a guided biopsy can be as painful as or even more uncomfortable than the exam itself^{4,5}. The endometrial biopsy was performed with Novak and the material was collected in a non-directed way, which could be a contributing factor for pain. There was no association, however, between the biopsy and the pain scale among the women studied.

The examination was carried out in a University Hospital by resident physicians in gynecology with a varied learning curve, guided by supervising physicians, which inherently leads to a variation in the performance. Other studies found that experienced surgeons are a protective factor for pain perception during diagnostic hysteroscopy^{20,24}. Factors such as technical ability may be correlated with the degree of anxiety and pain during hysteroscopy³. Another possible limitation is the lack of information about women's history of chronic pelvic pain and dysmenorrhea as a predictive factor of pain during hysteroscopy. Besides that, the questionnaire applied could lead to bias in the study when associated with the low cognitive level of some patients.

Office Hysteroscopy was associated with moderate but tolerable discomfort. There was a significant correlation between anxiety and higher scores on the pain scale. There was evidence of a relationship between reduced pain and parity and type of delivery, but not with reproductive age or endometrial biopsy procedure. The early identification of possible predictors of pain could trigger interventions to improve analgesia and reduce anxiety in patients who will undergo OH.

Conflicts of interest

The authors have no conflicts of interest, be it political, economic, regarding resources for carrying out the research, or intellectual property.

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Author's Contribution

Mayanna Rolim; Raquel Coelho; Camila Nogueira
1. Substantial contributions to the study concept and design, data collection or analysis and interpretation;
2. Writing of the article or relevant critical review of the intellectual content and 3. Final approval of the version to be published.

Ana Luiza Morais; Maria do Socorro Araujo; Denise de Moraes
1. Substantial contributions to the study concept and design, data collection or analysis and interpretation;
2. Final approval of the version to be published.

RESUMO

INTRODUÇÃO: A ansiedade está quase sempre presente antes de intervenções médicas e pode desempenhar um papel importante na percepção da dor. Buscou-se avaliar os fatores associados à intensidade da dor relatados pelos pacientes submetidos a histeroscopia ambulatorial (HA).

MÉTODOS: Estudo observacional transversal, com dados de abril a novembro de 2015. Foram incluídas pacientes atendidas na Maternidade Escola Assis Chateaubriand (Meac/UFC) com indicação de HA. Antes do exame, as pacientes responderam a um questionário validado sobre ansiedade (IAM). Após o exame, as mulheres responderam à Escala Visual Analógica (EVA). Os dados foram analisados no Statistical Package for the Social Sciences (SPSS) 15.0, com correlação de Spearman, teste U de Mann-Whitney e Anova.

RESULTADOS: Foram incluídas 252 pacientes, com idade média de 45,7 anos, das quais 29% estavam na pós-menopausa (dor média 5,5) e 71% eram menacme (dor média 5,1) ($p = 0,258$). O traço e o estado de ansiedade mostraram influência significativa na escala de dor ($p < 0,001$ e $p = 0,001$). Vinte e sete por cento das pacientes eram nulíparas. Menor dor foi associada ao número ($p = 0,01$) e tipo vaginal ($p = 0,005$) de partos. A principal indicação para o procedimento foi sangramento uterino anormal (54,4%); 66,1% necessitaram de amostra endometrial.

CONCLUSÕES: A HA pode estar associada a um desconforto moderado, mas tolerável. Houve correlação significativa entre escores mais altos na escala de dor e ansiedade, menor paridade, mas não com idade reprodutiva ou procedimento de biópsia endometrial.

PALAVRAS-CHAVE: Medição da dor. Escala de ansiedade manifesta. Histeroscopia.

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