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Original Article

Identifying Predictors of Unacceptable Pain at Office Hysteroscopy

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ABSTRACT **Study Objective:** To identify predictors of unacceptable pain during office hysteroscopy without anesthesia.
Design: Prospective observational study (Canadian Task Force classification II-2).
Setting: Teaching hospital.
Patients: Five hundred fifty-eight women aged 17 to 73 years.
Intervention: Elective office hysteroscopy without anesthesia.
Measurements and Main Results: Pain intensity was assessed via a verbal rating scale (VRS, 0–10). Pain was considered unacceptable when severe during the procedure (VRS $\geq$7) or moderate to severe at discharge (VRS $\geq$4). After preliminary statistical analysis, factors including diabetes, age $\leq$50 years, previous curettage, dyspareunia, severe dysmenorrhea, and hysteroscopist experience were selected to compose 2 binary multivariate models to predict unacceptable pain. As expected, hysteroscopist experience was protective against unacceptable pain during office hysteroscopy ($p = .03$; adjusted odds ratio [OR], 0.63; 95% confidence interval [CI], 41–96) and also at discharge ($p = .002$; adjusted OR, 0.48; 95% CI, 30–77). Severe dysmenorrhea was a significant risk factor for pain (cramps) at discharge ($p < .001$; adjusted OR, 3.07; 95% CI, 1.97–4.78).
Conclusion: Women with severe dysmenorrhea will benefit from preemptive analgesia regardless of hysteroscopist level of experience because this condition significantly increased the occurrence of unacceptable cramps at discharge. Journal of Minimally Invasive Gynecology (2014) ■, ■–■ © 2014 AAGL. All rights reserved.

Keywords: Confounding; Diagnostic hysteroscopy; Menstrual cramps; Predictors of pain; Preemptive analgesia

Pain and low patient tolerance have been the primary limitations to the widespread performance of office hysteroscopy without anesthesia (OH) [1]. Although OH is well tolerated in most cases, great discomfort or unacceptable pain occurs in some situations [2].

Ideally, women who demonstrate an unfavorable factor for unacceptable pain (high risk) should undergo the procedure under anesthesia or some other strategy to optimize analgesia during and after OH. Since 2008, our group has searched for factors that could predict unacceptable pain associated with OH, to prevent interrupted examinations due to low compliance. Insofar as cramps at discharge, the lack of reliable predictors has made it difficult to create a protocol for individualized preemptive analgesia in our population. Predictors of pain have been investigated in recent years to identify women at risk [3–7]. The objective of the present study was to identify predictors of unacceptable pain both during OH and at discharge, considering potential confounding factors.

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Materials and Methods

This prospective observational study included data from a total of 558 consecutive procedures performed from March 2008 through January 2012 in 2 centers: the outpatient diagnostic hysteroscopy clinic of the Department of Gynecology of the Fernandes Figueira Institute (IFF), a public teaching hospital of the Oswaldo Cruz Foundation, in which gynecologists in training have performed OH under the supervision of highly experienced physicians; and a private gynecologic endoscopy center, CEVESP, in which OH procedures are performed by 2 experienced hysteroscopists (C.M.A. Jr.). The study was previously approved by the Research Ethics Committee of the Fernandes Figueira Institute, Oswaldo Cruz Foundation (CEP IFF-FIOCRUZ No. 0045.0.008.000-07), which is a subordinate of the National Research Ethics Commission of the Brazilian Ministry of Health, in accordance with the Guidelines and Regulatory Standards for Research Involving Human Beings (CNS196/96). All patients gave informed consent before inclusion in the study.

The study included only examinations that were performed with no preemptive analgesia. Oral medications (usually nonsteroidal anti-inflammatory drugs, paracetamol or butylscopolamine bromide) were offered at discharge for pain relief when cramps persisted. All examinations were performed without anesthesia or sedation. There were no specific exclusion criteria. Contraindications to OH included pregnancy, uterine perforation occurring $<$1 month before the procedure, copious uterine bleeding, acute pelvic inflammatory disease, uncompensated conditions (i.e., arterial hypertension and self-reported poorly controlled diabetes mellitus), and refusal to undergo the procedure. The most frequent reason for undergoing hysteroscopic examination was abnormal bleeding. Other conditions included ultrasonographic changes such as myomas, polyps, endometrial thickening, infertility, postoperative review, and uterine malformation.

Before the examination, we obtained the patient's medical history and observed vital signs (blood pressure and heart rate). During the medical history assessment, we considered some hypothesized interfering factors in pain assessment associated with OH. The dichotomized variables (yes/no) included previous uterine curettage, parity, vaginal delivery, cesarean section, diabetes mellitus, hypertension, dyspareunia, severe dysmenorrhea, current oral contraceptive use, chronic pelvic pain (defined as recurrent or constant pain in the lower abdominal region that had lasted for at least 6 months) [8], age $\leq$50 years (the usual median age at natural menopause according to Nelson [9]), and smoking. After finishing the OH procedure, the physician who performed it noted whether any biopsy was performed and reported the primary hysteroscopic findings, including myomas, polyps, and endometrial thickness.

Systematically, the pain intensity reported by each participant was assessed by the same trained nurse (C.G.S.G.), using a verbal rating scale (VRS) at 2 points in time: at the end of OH, to ask about pain during the procedure; and at 10 to 15 minutes after the procedure [2,10], to ask about pain at discharge, which is usually referred to as cramps. This method enabled the patient's pain to be rated from 0 (absence of pain) to 10 (worst pain imagined by the patient) as a continuous variable that was directly proportional to the discomfort experienced by each individual. This scale was chosen because of its validity, practicality, and acceptance in studies of this nature; this method has been widely used in studies of pain intensity [11]. We considered pain during OH as unacceptable when severe (VRS score $\geq$7), and cramps at discharge were considered unacceptable when moderate to severe (VRS score $\geq$4); this pain stratification was based on a review by Breivik et al [12].

Similarly to Pluchino et al [13], to consider the effect of hysteroscopist experience, we also defined 2 groups of hysteroscopists: inexperienced (those who had performed $<$50 OH procedures) and experienced (those who had performed $>$500 OH procedures before the beginning of the study). The inexperienced group included 8 gynecologists from other hospitals with no experience in hysteroscopy, who were attending the annual course to train specialists in hysteroscopy in the IFF teaching hospital, and 3 residents who currently have started to perform OH during the third year of the residence program in the same hospital. The group of experienced hysteroscopists consisted of 2 IFF teachers. Thus, although the inexperienced group changed during the period, the experienced group was the same.

All OH procedures were performed via the vaginoscopic approach with the patient in the lithotomy position, as described by Bettocchi and Selvaggi [14]. Hysteroscopy via this technique has been a well-tolerated, effective, and safe outpatient procedure [15]. Procedures were completed using the same hysteroscopic equipment: 2.9-mm outer diameter telescope through a 3.5 mm outer diameter single-flow diagnostic sheath (Endoskope; Karl Storz GmbH & Co., Tuttlingen, Germany). Systematically, the hysteroscope was introduced through the vagina, and the cervix was exposed while the distention solution flowed; this routine did not include measurements of the pressure or flow rate of the hysteroscopy fluids. Next the device was introduced through the external orifice of the cervix and was moved forward through the canal as far as the uterine cavity. When necessary, a guided biopsy was performed using the hysteroscopic grasping forceps or a Novak curette, and aspiration was performed using the Karma method (manual vacuum aspiration with a double-valve aspirator and a flexible 4-mm Karman cannula) after passage of a Collins speculum.

OH procedures were performed using saline solution (0.9% sodium chloride) at room temperature because warmed fluid did not minimize the intensity of pain in this population [16] but might increase its fluidity and favor intravasation [17]. Uterine distention was obtained using a gravity-fed irrigation system that was suspended 1.5 m above the patient. Intrauterine pressure was performed