ELSEVIER

JMIG The Journal of Minimally Invasive Gynecology

Original Article

Parenterally Administered Moderate Sedation and Paracervical Block Versus General Anesthesia for Hysteroscopic Polypectomy: A Pilot Study Comparing Postoperative Outcomes

Gabriele Centini, MD, Andrea Calonaci, MD, Lucia Lazzeri, MD*, Claudia Tosti, MD, Caterina Palomba, MD, Rosa Puzzutiello, MD, Stefano Luisi, MD, PhD, Felice Petraglia, MD, and Errico Zupi, MD

From Obstetrics and Gynecology, Department of Molecular and Developmental Medicine, University of Siena, Siena, Italy (Drs. Centini, Calonaci, Lazzeri, Tosti, Luisi, Petraglia, and Zupi), and Department of Anesthesiology and Intensive Care, Azieda Ospedaliera Universitaria Senese, Siena, Italy (Drs. Palomba and Puzzutiello).

ABSTRACT **Study Objective:** To compare parenterally administered moderate sedation and paracervical block versus general anesthesia during day-case operative hysteroscopy for polypectomy in terms of patients' postoperative pain perception, operating time, and postoperative drug administration.
Design: A pilot study (Canadian Task Force classification I).
Setting: A university hospital.
Patients: Women undergoing hysteroscopic polypectomy procedures (N = 56).
Interventions: Hysteroscopic polypectomy with general anesthesia or moderate parenteral sedation and paracervical block.
Measurements and Main Results: The patients were divided into 2 groups: 26 underwent general anesthesia (group 1), and 30 were submitted to moderate parenteral sedation and a paracervical block (group 2). General anesthesia was induced with the laryngeal mask airway with propofol (1% 1–2.5 mg/kg) and fentanyl (1–2 μg/kg) and maintained with an infusion of propofol (2% 3–5 mg/kg/h). After the procedure, patients in the general anesthesia group received postoperative analgesic medication with paracetamol (20 mg/kg) and ketorolac (0.6 mg/kg) or tramadol (2–3 mg/kg). The group receiving moderate parenterally sedation and a paracervical block received a paracervical block with mepivacaine (1% 10 mL) and lidocaine (2% 10 mL) and received fentanyl (1 μg/kg) and propofol (1% 1–3 mg/kg/h) maintaining spontaneous breathing. A blind observer recorded the operative time and the discomfort of patients using a 4-step scale (0–3). The postoperative pain assessment was performed 3 hours after the procedure with a self-administered validated tool, the Brief Pain Inventory. We found that women receiving moderate parenteral sedation and a paracervical block perceived significantly less pain in daily activity ($p < .001$), walking ($p < .001$), daily work ($p < .001$), relations with others ($p = .007$), sleep ($p < .001$), and pain contrasting enjoyment of life ($p < .001$). The total amount of time spent in the operating room in group 2 was significantly lower than in group 1 ($p < .014$).
Conclusion: Moderate sedation plus a paracervical block for operative hysteroscopy is associated with reduced pain perception and a shorter operative time. Journal of Minimally Invasive Gynecology (2015) 22, 193–198 © 2015 AAGL. All rights reserved.

Keywords: General anesthesia; Operative hysteroscopy; Operative time; Pain; Paracervical block

DISCUSS You can discuss this article with its authors and with other AAGL members at http://www.AAGL.org/jmig-22-2-JMIG-D-14-00235R2

Use your Smartphone to scan this QR code and connect to the discussion forum for this article now*

* Download a free QR Code scanner by searching for "QR scanner" in your smartphone's app store or app marketplace.

In the last 15 years, the use of operative hysteroscopy for the treatment of abnormal uterine bleeding (AUB) and intracavitary abnormalities has widened considerably. The development of new techniques and instrumentations made a mini-invasive treatment of a large number of uterine pathologies that only a few years ago were treated with risky and

The authors declare no conflicts of interest.
Corresponding author: Lucia Lazzeri, MD, Department of Molecular and Developmental Medicine, University of Siena, Policlinico "Le Scotte", Viale Bracci, 53100 Siena, Italy.
E-mail: lucialazzeri@email.it

Submitted May 8, 2014. Accepted for publication September 21, 2014.
Available at www.sciencedirect.com and www.jmig.org

1553-4650/$ - see front matter © 2015 AAGL. All rights reserved.
http://dx.doi.org/10.1016/j.jmig.2014.09.008

invasive methods possible [1]. Given its safety and feasibility, operative hysteroscopy has become the standard for the treatment of endometrial polyps, which affect 10% of premenopausal and 20% of postmenopausal women with abnormal uterine bleeding including endometrial/endocervical polyps [2,3]. Most operative hysteroscopies are performed in the setting of an operating room under general anesthesia [4,5], causing major costs and risk of failure in patients with serious medical conditions such as hemodynamic instability, laryngospasm, bronchial asthma, and a previous reaction to general anesthesia [6].

The recent advantages in endoscopic instrumentation allow clinicians to perform quicker, less expensive, and safer operative hysteroscopy with local anesthesia plus moderate sedation [7]. A systematic review [8] showed that the paracervical block (PCB) is the best method of pain control for women undergoing diagnostic and operative hysteroscopy, but most of these data derive from diagnostic hysteroscopy; there are few data regarding operative hysteroscopy.

Our aim was to study day-surgery operative hysteroscopic polypectomy and to compare general anesthesia and moderate parenteral sedation plus PCB in conscious sedation in terms of patients' postoperative pain perception, operating time, and postoperative drug administration.

Materials and Methods

This was a pilot study performed from June 2013 to January 2014 in the Department of Obstetrics and Gynecology at the University Hospital of Siena "Policlinico Santa Maria alle Scotte," Siena, Italy. A total of 56 women undergoing operative hysteroscopy for endometrial polyps were selected after anesthesiologic evaluation in a prehospitalization regimen. At the time of hospitalization, each patient signed an informed consent in order to include them in the study; official approval by the local ethics committee was obtained. The selected patients were randomized into 2 groups using computer-generated random numbers in the preoperative room: the GA group (group 1), 26 patients undergoing GA and the sedation plus PCB group (group 2), 30 women undergoing to moderate parenteral conscious sedation and a PCB. All the interventions were performed by the same surgeon (EZ).

The exclusion criteria were as follows: severe coagulopathies, mental diseases, allergy to local anesthetics, pathologies connected with abdominopelvic pain that could confuse the perception of pain directly related to the procedure (e.g., endometriosis), and patients in disagreement with the study protocol.

At the entry in the hall of the operating room, a 20-G cannula needle was inserted in each patient, premedicated intravenously with midazolam (0.02 mg/kg) (A.I.C. 035569019/M Istituto Biochimico Italiano Giovanni Lorenzini A.p.A, Aprilia, Lazio, Italy), and preemptive analgesia (paracetamol 1 g and ketorolac 30 g for group 1 and only paracetamol 1 g for group 2) was administered. Then, patients were carried out to the operating room and placed in the lithotomy position. Standard monitoring devices (electrocardiogram, oximeter, blood pressure, and so on) were applied in all patients, and all parameters were assessed before the procedure (i.e., blood pressure, pulse oximeter, oxygen saturation as measured by pulse oximetry, and heart rate).

In the GA group, general anesthesia was induced with propofol (1% 1–2.5 mg/kg) (A.I.C. AstraZeneca S.p.A, Basiglio, Milan, Italy) and fentanyl (1–2 μg/kg) (A.I.C. Pfizer Italia S.r.l., Rome, Italy), and a laryngeal mask (Ambu AuraOnce number 3-4; Ambu A/S, Ballerup, Denmark) was applied. Each patient, in the gynecologic position, was connected to a Drager Infinity Delta ventilator (Dräger Medical AG & Co., Lübeck, Germany) in a pressure-controlled ventilation mode. Propofol (2% 3–5 mg/kg/h) was infused in order to maintain the stability of anesthesiologic and vital parameters. At the end of the operative procedure, anesthetic infusion was stopped, and the laryngeal mask was removed when the patient started to breathe spontaneously.

In the sedation plus PCB group, patients received moderate parenteral sedation with fentanyl (1 μg/kg) and propofol (1% 1–3 mg/kg/h), maintaining a status of spontaneous breathing and continuous verbal contact with the patient. The PCB was performed with the patient in the gynecologic position with a 22-G atraumatic spinal needle (DuraJect I, Sterylab, Milan, Italy) connected with a 20-mL syringe containing mepivacaine (5 mL 1%) (A.I.C. 033640020 Industria Farmaceutica Galenica Senese S.r.l. Monteroni d'Arbia, Siena, Italy) and lidocaine (8 mL 2%) (A.I.C. 031973035 S.A.L.F. S.p.A Laboratorio Farmacologico Cenate Sotto, Bergamo, Italy). The cervicovaginal fornix was located using the examining finger, and the injections were performed at the 3-o'clock and 9-o'clock positions. After the administration of anesthesia, all the procedures for both groups were performed with a Karl Storz 26 ch monopolar operative hysteroscope, and a glycine solution (1.5%) at a variable flow rate up to 300 mL/min under a continuous pressure of 100 mm Hg was used as distention medium. A graduated bag was applied under the sacrum to have continuous monitoring of the outflow of glycine solution, and the imbalance was recorded. After dilatation of the cervix with a Hegar dilator series up to 27 ch, the hysteroscope was introduced to perform the procedure; polypectomy was performed by the so-called slicing technique.

To evaluate the time-consuming aspect, an outside observer, who was blind to the anesthetic technique, recorded the operative time. All the patients were shielded by a green towel, so the observer was completely blind to the type of anesthesia used. Three specific checkpoints were fixed: time 1: dilatation of the cervix (with or without the PCB) from the insertion of the tenaculum on the cervix to the end of the Hegar dilatator (n° 9½ removal); time 2: time to perform the procedure from the insertion of the resectoscope (Karl Storz GmbH, Tuttlingen, Germany) in the uterine cavity to the complete removal of the polyps; and time 3: from the end of the procedure to the exit from the operating