

# Local Anesthesia Combined With Sedation Compared With General Anesthesia for Ambulatory Operative Hysteroscopy: A Randomized Study

Lone Dragnes Brix, MHSc, RN, Theis Muncholm Thillemann, MD, PhD,  
Lone Nikolajsen, MD, DMSc

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**Purpose:** *The purpose of this study was to compare two anesthetic techniques for postoperative pain after ambulatory operative hysteroscopy.*

**Design:** *A randomized trial.*

**Methods:** *Women (N = 153) scheduled for ambulatory operative hysteroscopy were assigned to receive either paracervical local anesthesia combined with sedation (group LA + S; n = 76) or general anesthesia (group GA; n = 77). Primary outcome was the worst pain intensity score in the postanesthesia care unit (PACU) rated by the patients on a numerical rating scale.*

**Finding:** *Data from 144 patients were available for analysis (LA + S: n = 69; GA: n = 75). There were no significant differences in worst pain intensity between groups in the PACU (P = .13) or after discharge from PACU (P = .40). In group LA + S, fewer patients received treatment with intravenous fentanyl intraoperatively (P < .01) and time until discharge from PACU was shorter (P < .01). More patients in group LA + S experienced vomiting after discharge (P < .05).*

**Conclusions:** *Local anesthesia with sedation can be recommended as a first choice anesthetic technique for operative ambulatory hysteroscopy.*

**Keywords:** *postoperative pain, anesthesia, ambulatory surgery, operative hysteroscopy.*

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**HYSTEROSCOPY PROCEDURES SUCH** as polypectomy, endometrial ablation, and myomectomy are frequently performed in ambulatory surgery settings,<sup>1</sup> with many benefits for the patients and

care providers, such as a decrease in complication rates, a short recovery time with rapid return to work, and shorter hospital stays and thus reduced costs.<sup>2-4</sup>

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Lone Dragnes Brix, MHSc, RN, PhD student at the Department of Anesthesiology, Horsens Regional Hospital, Horsens, Denmark; Theis Muncholm Thillemann, MD, PhD, Speciality registrar at the Department of Orthopedic Surgery, Aarhus University Hospital, Aarhus, Denmark; and Lone Nikolajsen, MD, DMSc, Research consultant at the Danish Pain Research Centre and Department of Anesthesiology, Aarhus University Hospital, Aarhus, Denmark.

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Address correspondence to Lone Dragnes Brix, Department of Anesthesiology, Horsens Regional Hospital, Sundvej 30, Horsens 8700, Denmark; e-mail address: [lonebrix@rm.dk](mailto:lonebrix@rm.dk).

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Hysteroscopy is painful, and various methods for anesthesia have been described, including paracervical local anesthetic injections combined with sedation and general anesthesia.<sup>5-7</sup> Effective postoperative pain management is essential for early discharge after ambulatory surgery. However, there is no consensus on the choice of anesthesia. We therefore decided to compare two commonly used anesthetic methods: paracervical local anesthesia combined with sedation (LA + S) and general anesthesia (GA).

## Materials and Methods

### *Patients*

The study was approved by the Central Denmark Region Committees on Health Research Ethics (M-20110023), the Danish Health and Medicines Authority (EudraCT number: 2010-023843-13), and the Danish Data Protection Agency. It was registered at [Clinicaltrials.gov](https://clinicaltrials.gov/ct2/show/study/NCT01412632) (NCT01412632), conducted in accordance with guidelines for Good Clinical Practice (GCP), and monitored by the GCP-unit at Aarhus University Hospital, Denmark.

After obtaining written informed consent, 153 patients were enrolled at the Day Surgery Unit at Horsens Regional Hospital, Denmark. Inclusion criteria were planned operative hysteroscopy procedure and age  $\geq 18$  years. Exclusion criteria were pregnancy, fibroids  $>3 \times 3$  cm, body mass index  $\geq 40$ , psychiatric illness, inability to communicate in Danish, or known allergy to remifentanyl, propofol, or prilocaine.

### *Randomization and Intervention*

On the day of surgery, patients were randomized to receive LA + S or GA by using sequentially numbered opaque-sealed envelopes. Randomization was performed in block sizes of 20 patients, each with a ratio of 1:1 according to a computer-generated sequence. Both groups received dexamethasone 8 mg, paracetamol 1 g, and ibuprofen 600 mg orally as premedication before anesthesia. If ibuprofen was contraindicated, it was replaced by tramadol 50 mg orally. According to the standard protocol of postoperative nausea and vomiting (PONV) prophylaxis, intraoperative 4-mg intravenous (IV) ondansetron was used for patients with a high risk of PONV.

For patients in group LA + S, anesthesia was induced with propofol 2.5 mg/kg/hour and remifentanyl 12.5 mcg/kg/hour. When the patient was able to sense the effect of remifentanyl, infusion rates were reduced and maintained by a continuous infusion of propofol 1.33 mg/kg/hour and remifentanyl 3 to 5 mcg/kg/hour. The infusion rates were adjusted equal to a patient sedation level at 3 to 4 on the Ramsay Sedation Scale (1 to 6). Using a  $.4 \times 35$  long needle, the gynecologist applied 3.60- to 7.2-mL Citanest Dental Octapressin (30 mg/mL + .54 mcg/mL prilocaine hydrochloride + felypressin; Pierrel S.p.A., Capua, Italy) for paracervical local anesthesia. Bolus doses of 50- to 100-mcg fentanyl IV were used for treatment of intraoperative pain  $\geq 3$  on a Numerical Rating Scale (NRS; 0 = no pain and 10 = worst pain possible).

For patients in group GA, anesthesia was induced with propofol 10 mg/kg/hour and remifentanyl 50 mcg/kg/hour; and when the patient was able to sense the effect of remifentanyl, a bolus dose of propofol 2 to 2.5 mg/kg was given. Hereafter, the infusions were maintained by continuous infusion of propofol 5 mg/kg/hour and remifentanyl 2.5 mcg/kg/hour. The infusion rates were adjusted equal to a patient sedation level at 6 on Ramsay Sedation Scale, 1 to 6. The airway was managed with a laryngeal mask, and the lungs were ventilated with 40% to 45% oxygen in air. Bolus doses of 50- to 100-mcg fentanyl IV were used for intraoperative pain, guided by increases in pulse and blood pressure and/or motor unrest during anesthesia. In both groups, remifentanyl and propofol infusions were discontinued 4 to 5 minutes before the end of surgery. Surgery was performed by experienced gynecologists specialized in hysteroscopic procedures and trained in paracervical local anesthesia.

The same team of anesthesia providers and nurses in the PACU took care of and treated the two groups according to standard protocols regarding pain and PONV/postdischarge nausea and vomiting (PDNV).

### *Care and Treatment*

In the PACU, intensity of pain (NRS, 0-10) and nausea and vomiting (yes/no) were assessed at arrival, and every 15 minutes, or with shorter

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