Lidocaine Infusion on Hysteroscopic Media versus Oral Diclofenac for Pain Relief during Outpatient Hysteroscopy A Randomized Controlled Trial

Thesis

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Ahmed Hamdy Gouda Aboutabl

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List of Abbreviations

Abb.	Full term
AUB	*Abnormal uterine bleeding*
BMI	*Body mass index*
CNS	*Central nervous system*
CO2	*Carbon dioxide*
COX	*Cyclooxygenase*
DUB	*Dysfunctional uterine bleeding*
DRG	*Dorsal root ganglia*
ECDU	*Early cancer detection unit*
FIGO	*International Federation of Gynecology and Obstetrics*
ISAP	*The International Association for the Study of Pain*
ICSI	*Intra Cytoplasmic Sperm Injection*
IUCD	*Intrauterine contraceptive device*
IUI	*Intra Uterine Insemination*
IV	*Intravenous*
KTP	*Potassium-titanyl-phosphate*
NMDA	*Non methyle D aspartate*
NRM	*Nucleus raphe magnus*
NSAIDS	*Non steroidal anti inflammatory drugs*
OD	*Outer diameter*
PAG	*Peri-Aqueductal Grey matter*
PCB	*Paracervical Block*
PID	*Pelvic inflammatory disease*
RPL	*Recurrent pregnancy loss*
SC	*Subcautaneusly*
SIS	*Saline infusion sonography*
STDs	*Sexually transmitted disease*
VAS	*Visual analogue scale*
VMM	*Ventromedian medulla*
WDR cell	*Wide dynamic range cell*

INTRODUCTION

Hysteroscopy can be arguably regarded as the definitive procedure for evaluating the uterine cavity ***(Serden et al., 2000).***

Diagnostic hysteroscopy is a safe and simple procedure that can almost always be carried out successfully in an office setting.

The challenge is to increase the number of operative procedures. Office hysteroscopy has already shown good results as compared with outpatient hysteroscopy, with lower health care costs, less time off work, and equal patient acceptability ***(Yang et al., 2002).***

Although the literature suggests that office-based operative hysteroscopy without any form of analgesia or anesthesia is a well-tolerated procedure with a high success rate ***(Kremer et al., 2000)*** it continues, in general, to be considered by most gynecologists and patients to be an invasive and painful technique. Pain experienced during hysteroscopy continues to represent the most common reason for failure ***(Campo et al., 2005).***

Pain during and after hysteroscopy, is due to several causes, cervical manipulation is usually the first cause ***(Ahmad et al., 2010).*** The cervix is grasped with an instrument (tenaculum), and may be dilated to allow the hysteroscope to

pass through ***(Agdi et al., 2010).*** Distention of the uterus during the process can also cause pain ***(Ahmad et al., 2010).*** Pain stimuli from the cervix and vagina are conducted by affrent fibers to via the pudendal and splanchnic nerves with the parasympathetic fibers to the S2 & S4 spinal ganglia ***(Moore et al., 2006).***

Several types of drugs are used to reduce pain during and after the procedure, such as Non Steroidal Anti Inflammatory Drugs (NSAIDs) as diclofenac, opioid analgesics and local drugs ***(British National Formulary et al., 2008).***

Local anesthesia during outpatient hysteroscopy is proposed to be an effective method for pain relief in the upper part of the uterus by blocking the nerve endings in the uterine corpus and fundus. Lidocaine spray is also used in some cases during pipelle biopsy ***(Hui et al., 2006).***

AIM OF THE WORK

Primary Objective:

To assess the efficacy of oral Diclofinac and Lidocaine instillation in the hysteroscopic media, in reducing pain associated with outpatient hysteroscopy.

Secondary Objective:

- To document adverse effects and complications during the study.
- Rate of completion of the procedure.
- Patient satisfaction.
- Time of the procedure.

Chapter 1

HYSTEROSCOPY

Hysteroscopy is a safe and feasible procedure for diagnosing intrauterine pathology, including abnormal uterine bleeding, infertility, and recurrent pregnancy loss, and is essential for the performance of many minimally invasive intrauterine therapeutic interventions ***(Hassan et al., 2005).***

In most cases, the intrauterine pathologies can be diagnosed and treated at the same setting. For example: endometrial polyps can be diagnosed and removed. Also intrauterine adhesions can be liberated in the outpatient setting with out the need for an operating theatre ***(Mohammadi et al., 2015).***

Types of hysteroscopy:

- ***Rigid hysteroscope:***

Rigid hysteroscopy has a wide range of diameters that allows in-office and complex operating room procedures. Narrow options (3-5 mm in diameter), the 4 mm telescope (lens) offers the sharpest and clearest view**.** It accommodates surgical instruments, but is small enough to require minimal cervical dilatation ***(Bettocchi et al., 2003).***

Operative hysteroscope ranges from 8mm to 10mm in diameter and contain a working element, that requires increased cervical dilatation for insertion **(Figure 1).** It is most frequently used in the operating theatre with intravenous (IV) sedation or general anaesthesia**.** A distending media is introduced and removed through an outer sheath that fits over the telescope to

provide ports to accommodate large and varied instruments ***(Breitkopf et al., 2012).***

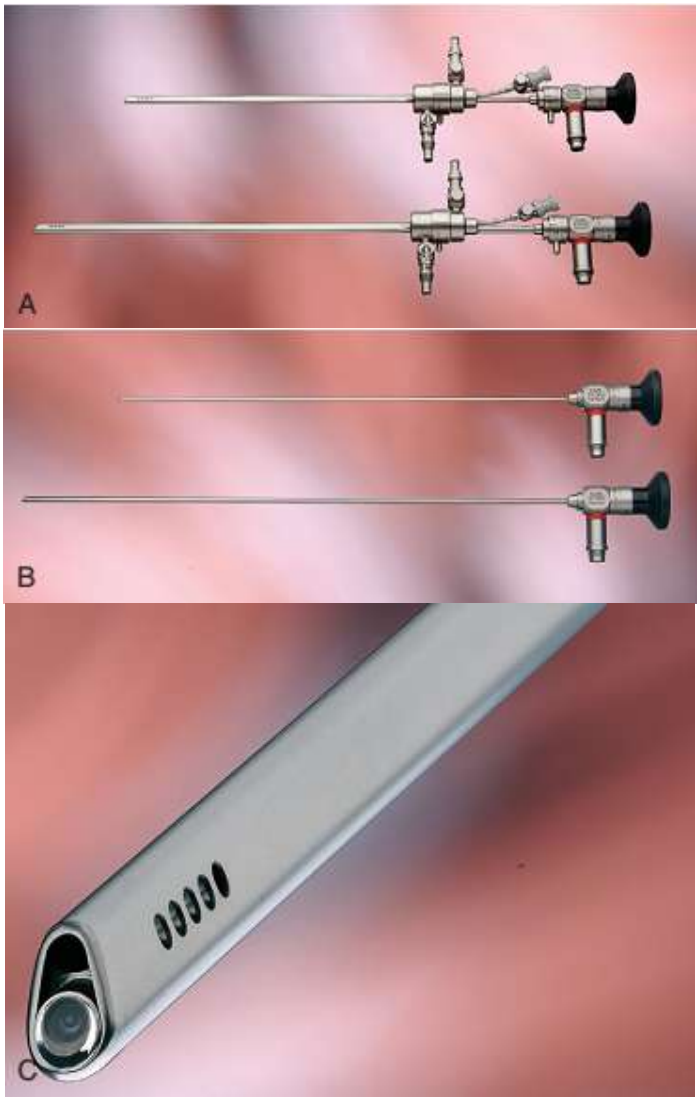

Figure (1): Typical instruments feature two sheaths, one for irrigation and another for suction. A, 4-mm and 5-mm sheaths**.** B, 2.9-mm and 2.0-mm rod lens telescope. C, The oval tip allows atraumatic introduction ***(Breitkopf et al., 2012).***

- ***Flexible hysteroscope:***

Flexible (fiberoptic) hysteroscope ranges in diameter from 2.7mm to 5mm, and has a bendable tip that can be deflected in two directions ranging from 120 to 160 degrees (**Figure 2)**. It also containes an operating channel for tubal catheterization or endometrial biopsy ***(Breitkopf et al., 2012).***

Generally it does not require cervical dilatation. It has a longer working length than rigid hysteroscope ***(Cheong and Ledger, 2007),*** that is more helpful in morbidly obese patients. The smaller outer diameter (OD) compared to the rigid hysteroscope has more advantage in nulliparous patients or those who experienced prior cervical conization ***(Greenfield et al., 2008).***

Figure (2): Karl Storz flexible hysteroscope
(Bradley and Tommaso, 2009).

Parts of hysteroscope:

The telescope consists of 3 parts: objective lens, the barrel and the eyepiece. The focal length and angle of the distal tip of the instrument are important for visualization ***(Critchley et al., 2004).***

Special instruments:

- Light source
- Energy source

Light source:

A light source is required to illuminate the intrauterine cavity ***(ACOG, 2010).*** Hysteroscopic viewing distances are less than 5 cm, so the light intensity is lower than that used in laparoscopy ***(Breitkopf et al., 2012)***. Fiberoptic cables are the most common for light transmission without excessive heat generation Lighting sources include tungsten, metal halide and xenon. Xenon lighting system attached to a liquid cable is now considered the superior option **(Figure 3)** ***(Polyzos et al., 2010).***

Figure (3): Xenon lighting system ***(Polyzos et al., 2010).***

Energy sources:

Monopolar cautery:

The resectoscope is a specialized instrument that is used with a monopolar, double armed electrode and a trigger device for use in nonconductive, hypotonic media. It cuts and