# CHAPTER 1

# INTRODUCTION

**Background and Rationale :**

Female sterilization is the most popular method of birth control. While non puerperal (interval) tubal ligation can be done under laparoscopy and minilaparotomy, puerperal (postpartum) tubal ligation can be done within 7 days after delivery via a small incision below the umbilicus while the uterus is still large and easy to be palpated. Due to its ease and safety, immediate postpartum tubal sterilization (within 24 hr.) has been done safely in the remote area of many countries by either obstetricians, general practitioners or paramedical personnel.[1] Anesthesia for tubal ligation varies widely. While both general and local anesthesia can be used for interval tubal ligation under laparoscopy,[2] regional anesthesia (epidural and spinal) and local anesthesia can be used for postpartum tubal ligation.[3-6] Why are different techniques of anesthesia applied to the same operation? Regional anesthesia can not be used for interval tubal ligation under laparoscopy because gas insufflation during laparoscopy produces hemodynamic changes and also compromises

respiration. General anesthesia can be used in postpartum tubal ligation but is not as popular as regional or local anesthesia, because postpartum tubal ligation is usually done within 24 hours post delivery, the time at which there is still a chance of pulmonary aspiration under general anesthesia. While regional anesthesia can be used for postpartum tubal ligation, anesthesiologist is needed because major complications such as total spinal block (after epidural anesthesia), severe hypotension and post dural puncture headache (after spinal anesthesia) can occur.[7-10] However, there is a manpower shortage of anesthesiologists in Thailand and many parts of the world. For postpartum tubal ligation, obstetricians and general practitioners usually use local anesthesia for the sake of safety but often without adequate pain relief. A safe and cheap method of pain relief would be very helpful to this group of patients. Even though nobody dies from pain, suffering should not be accepted.

Thailand, like other developing countries, follows the policy of National Family Planning Program. Female sterilization is the most effective method of contraception. Immediate postpartum sterilization is preferred in most hospitals, while interval sterilization is offered where the technique is available. Generally, patients in the lower

socioeconomic status prefer immediate postpartum sterilization while the more privileged elect interval timing. The data from National Census indicated that many of the reproductive couples with 3 or more children still practice temporary contraception or are not currently using any contraception at all because they were afraid of the surgical procedure and side effects. It is difficult to motivate people to accept sterilization if they have negative attitudes including fear of pain and some misunderstanding of changing their sexual life after the sterilization.[11] Therefore, adequate pain relief during the procedure should contribute to the success of the National Family Planning Program.

**Review of the related literature**

In 1950, Hanson and Hingson reported their first use of intraperitoneal lidocaine 500 - 1000 mg for explore laparotomy[12] and found the average duration of anesthesia to be 45 minutes. In 1972, Munson[13] reported the use of local skin infiltration with the aid of diazepam 0.3 mg/kg and alphaprodine ( Nisentil ) 20 mg in 137 patients scheduled to have immediate postpartum tubal ligation. He claimed that this technique was well accepted by the patients and was routinely

employed. Cruikshank[14] in 1973 disagreed with Munson, and noticed that with only local skin infiltration, retraction of the peritoneum or pelvic viscera was impossible because of patient's discomfort, and the patient experienced pain when the tubes were ligated. He then reported the use of 0.5% lidocaine 80 ml instilled into the peritoneal cavity of 26 women scheduled for postpartum tubal ligation under heavy sedation with intravenous diazepam 15 mg and alphaprodine 10 mg and reported that " 16 out of 26 patients slept through out the procedure." Although intraperitoneal lidocaine seemed to be safe, simple and effective, only local skin infiltration is still widely used for postpartum tubal ligation for unknown reason. Until 1985, Deeb[15] reported using 0.5% lidocaine 100 ml intraperitoneum for laparoscopic tubal ligation and claimed that it was an alternative technique to general anesthesia for this procedure. Narchi in 1991[16], Benhamou in 1994[17] reported the use of intraperitoneal local anesthetic for postoperative analgesia in day case laparoscopy and laparoscopic sterilization done under general anesthesia. It could relieve pelvic and shoulder pain in the postoperative period that are caused by to carbondioxide irritation of the diaphragm.

Even after Cruikshank[14] has reported intraperitoneal lidocaine for intraoperative pain relief more than 20 years ago, we do not have enough information to confirm its use in postpartum tubal ligation. If we are absolutely sure that this simple technique is safe and can be effectively used by obstetricians, general practitioners or even paramedical personnel such as nurses (under supervision of the physician), it should be very beneficial both to the patients and to the policy of the National Family Planning Program.

Intramuscular morphine is our conventional method for pain relief during postpartum tubal ligation. It is the easiest but the least effective method for pain relief in many kinds of surgery except postpartum tubal ligation[18-21] and it is unethical to use any treatment with uncertain benefit

The concept of preemptive analgesia implies that analgesic intervention provided before surgery prevents or reduces subsequent postoperative pain by preventing massive nociceptive bombardment of the central nervous system (peripheral and central sensitization ) produced by surgery.[22] Preemptive treatment could be directed at the periphery, by anti-inflammatory drugs, local anesthetics and opioids, either alone or in combination.[23] We do not know exactly how long the analgesia of intraperitoneal lidocaine last. But the preemptive concept

supports the theory that postoperative pain can also be relieved by intraperitoneal lidocaine.