

## CHAPTER V

### DISCUSSION

The fully relaxation of the anal canal without sensation is an ideal setting for various anal surgical procedures. This study revealed that the local anesthesia was comparable to spinal block with regard to the adequacy of pain control and adequate providing of exposure for hemorrhoidectomy. Both anesthetic techniques provided 100% success rate for hemorrhoidectomy. Postoperative pain after hemorrhoidectomy is usually very intense. Severe postoperative pain leads to prolonged recovery time due to substantial analgesic consumption, which in turn results in prolonged hospitalization. Attempts to reduce postoperative pain by using new surgical techniques have unfortunately not been entirely successful.

Because, the subjective nature of pain making pain difficult to assess therefore, this study used the number of analgesic pills and analgesic injections as an objective assessment of pain in accordance with the visual analogue scale. There are numerous known and unknown factors that influence patients' experience of pain. Then this study was designed with the purpose of identifying whether there were differences in reported pain intensity between SA group and LA group as valid and reliable as possible. This study intended to address and control many known factors influencing on the experience of pain beforehand such as 1) In the process of randomization patients had been stratified by gender in order to have equal proportion of male and female within groups because women may have lower pain thresholds, lower tolerance, and increased sensitivity to painful stimuli than men. 2) Neither subjects in SA group nor LA group were allowed to do warm sitz bath during the first 24 hrs. On the one hand, this study used randomization procedure to distribute unknown influencing factors.

The results of this study revealed that there were no significant differences in postoperative pain intensity measured by VAS between local anesthesia and spinal anesthesia. Nevertheless, not only subjects in the SA group required more analgesic injections comparing to subjects in the LA group ( $P = 0.04$ ) but there were also significant higher numbers of subjects in SA group that requested analgesic injection

( $P = 0.04$ ). With regard to subjective pain measurement with VAS, there was only 16.3% difference in mean pain scale between the two groups based on the result of this study (42.7 vs. 51.9). Then, the calculated sample size of this study was able to detect this small amount of difference in pain levels with a power of only 21% at a significance level of .05. Then, the sample size of this study was not sufficient to detect the difference of pain between these two methods. This small amount of difference in pain intensity did not seem to bear clinical significance from a clinical point of view.

This study revealed that local anesthetic technique is feasible and safe for hemorrhoidectomy. The local anesthesia was comparable to spinal block with regard to the adequacy of pain control and adequate providing of exposure for patients required elective hemorrhoidectomy. Both anesthetic techniques provided 100% success rate for elective hemorrhoidectomy. Local anesthesia may be an alternative in some remote areas where anesthesiologists may not be available. However, surgeon should be fully trained in surgical principles and techniques to safely perform this procedure. In addition, local anesthesia should only be selected in case by case basis. This technique holds out many prospective benefits for the patients such as less postoperative requirement of postoperative analgesic injection, lower incidence of postoperative voiding problems and the patients may be allowed to ambulate immediately after surgery.

Adverse effects of postoperative opioid analgesic injection may delay recovery. These effects include postoperative nausea, sedation. In addition, patients with spinal anesthesia are significant more likely to develop voiding difficulty after hemorrhoid surgery. The mechanism of urinary retention has not been well established, but the possible explanation is that the postoperative anal pain stimuli activate a sympathetic nerve that causes a bladder outlet obstruction and micturition difficulties [14, 15]. In addition, a reflex urethral spasm, a reduced tension of the detrusor muscle as a result of an intraoperative anal dilation and the stimulation of the sympathetic nerve caused by pain [16, 17]. Since, hemorrhoidectomy involves the same nerve supply that supplies the anal and urethral sphincter muscles then a reflex urethral spasm or a depressed detrusor muscle function can be easily induced after surgery. Intraoperative high volume of intravenous fluid loading is mandatory and necessary for prevention of hypotension in spinal anesthesia. Patients who underwent hemorrhoidectomy under

spinal anesthesia received larger volume of intravenous fluid than patients who underwent local perianal block. For this reason patients with spinal anesthesia were more likely to develop voiding problems. With regard to this study the severity of pain were not significant differences between the patients with and without voiding problems but the method of anesthesia and the total amount of intravenous fluid were significant affect the occurrence of voiding problems in univariate analysis. Nonetheless, the type of anesthesia was only one independent predictor of voiding difficulty in multivariate regression analysis.

In the present study, medication cost and the cost of surgery for individual subjects were measured and analyzed as cost-minimization analysis. In comparison with spinal anesthesia, local anesthesia was identified as being a less costly option for hemorrhoid surgery with a mean total treatment cost of 6586.3 baht for performing under local anesthesia as compared with 7145.4 baht for performing under spinal anesthesia.

Although, the local anesthesia holds out many prospective benefits over spinal anesthesia such as fewer postoperative voiding problems, lower cost, quicker anesthetic recovery, but there were two subjects in LA group had postoperative external hemorrhoidal thrombosis and one of them needed operation. On the other hand, there was no external hemorrhoidal thrombosis in SA group. The etiology was probably due to the compression of venous drainage in LA group. In order to obtain a better care and better postoperatively pain control. We have to find out the method that can reduce postoperative pain substantially. This will make the patient feel more comfortable and enable to perform hemorrhoidectomy as an ambulatory setting under local anesthesia. This would not only reduce hospitalization cost for patients but also make bed available for others undergoing major surgical procedures. This would be of great benefit both for patients and society in general.