CHAPTER 7
DISCUSSION, CONCLUSION AND RECOMMENDATION

DISCUSSION

Baseline characteristics

The main objective of the present study was to assess treatment effect on the intensity of pain induced by a surgical procedure. Therefore, pain assessment was a crucial step in this study. Pain is a multidimensional internal event that cannot be directly observed by clinicians or assessed by bioassays. The most reliable indicator of the existence and intensity of pain is patient self-reporting.[31] As a result, assessment of pain experience is always subjective and the data obtained can be influenced by psychological (pain experience, pain expectation, cognitive function), social and medical factors.[37] Overestimation of pain correlates with emotional distress, female sex, less education; whereas lower level of satisfaction associate with younger and female.[38] Therefore, these factors have to be controlled at baseline.

In this double blind randomized placebo controlled trial, the baseline factors that were controlled at the beginning were caregiver (i.e. anesthesia provider, and gynecologist performing F/C), sex (i.e. female only), indication of F/C (i.e. abnormal uterine bleeding), and some characteristics of the patients (i.e. eligibility criteria). According to randomization, other factors were expected to be comparable between the 2 study groups. The baseline variables that were comparable included age, education level, economic status, history of vaginal delivery, menopausal status, body mass index, and uterine sound length. Unfortunately, there was discrepancy in some baseline variables. Compared with the control group, the treatment group seemed to have higher incidences of prior curettage experience, procedure with cervical dilatation and long operative time, but have lower incidence of difficult case.

The difference in some baseline characteristic may affect the outcomes. Prior curettage could have positively or negatively effect on patient satisfaction

depending on pain experience, i.e. the satisfaction level would be high if the present procedure caused less pain than the prior one did, and vise versa.[38] Procedure with cervical dilatation added distress to the patient, and it may cause high pain intensity if it was the most painful step. Procedure with long operative time could have null to negative effect on patient satisfaction.[38]

It would be better to statistically adjust the above incomparable factors. However, multiple variable analysis could not be applied because of the small sample size. Therefore, the data was analyzed without statistical adjustment.

Effectiveness

In the present study the effectiveness was estimated from primary outcome which was 10 cm VAS pain score, and secondary outcomes which were proportion of patients with pain score ≤ 4, proportion of patients who needed immediate post operative analgesia, success rate of the operation, difficulty index, and patient satisfaction index.

For the primary outcome, the difference of 10-cm VAS pain score of at least 2 cm was considered to have clinical significance. This number was used because the precision of VAS pain score in the immediate postoperative period was ± 20 mm.[33] The precision range might be narrower than 2 cm in a fully conscious patients (i.e. no exposure to sedative medication) as the patients in the present study. However, the author still used 2 cm because the pain score in the control group was estimated to be 4-6 cm, and if the treatment could reduce pain for 2 cm, then the pain score in the treatment group would become 2-4 cm. The pain level of < 4 of 10 cm is considered to be acceptable.[31] In the present study, the control group had pain score of 4.7 cm, whereas the treatment group had 2.3 cm. This 2.4 cm difference had both clinical importance and statistical significance. It meant that the treatment effectively reduced pain from moderate degree to mild degree.

Analysis of secondary outcomes did not show statistical significance although the results seemed to favor the treatment, i.e. more patients with pain score $\leq$

4. This is because the statistic for categorical data has less power than that for continuous data. This was one of the reasons why the present study chose 10-cm VAS despite the availability of numerous pain measurement methods. Nowadays, the 3 most commonly used methods are Verbal Rating Scales (VRSs), Visual Analogue Scales (VASs), and Numerical Rating Scales (NRSs). Each method has its strength and weakness (reviewed in Jensen MP and Karoly P, 2001 [37]) and none is better than the others in term of validity.[39, 40] VAS is easy to understand, sensitive to treatment effects, and has ratio quality.[37] The latter quality makes it logical to analyze data by parametric statistic and its interpretation is comprehensible.

Although F/C in the control group was more painful and more difficult, none of the patients in both groups requested procedure termination, or requested immediate post operative analgesic medication. This could be partly explained by the fact that F/C is a short operation, and pain is procedure related, i.e. pain ceases when the procedure stops. Most of the patients in the present study had the operation finished within less than 10 minutes. Such operative time included the time for anesthesia administration, which took approximately 4 minutes. The longer operative time was caused by difficult catheterization of cervical canal for IUA. Since this was not a painful step, the lengthy operation did not cause high pain score. Interestingly, even though the lengthy operation was more often in the treatment group, the operation was easier. The longer anesthetic time may enhance anesthetic effect of PCB. Although Miller, et al in 1996[21] purposed that waiting period after PCB was unnecessary because the action of PCB was immediate and its mechanism of action was distention of soft tissue, causing mechanical disruption of nerve impulses. The Miller's purpose could not apply to the result of the present study because the longer anesthetic time seemed to be beneficial. In Miller's study, the study population was pregnant women undergoing suction curettage using flexible instrument. Their uterus and cervix were soft; therefore instrumentation was already easy. In the present study, non-pregnant women undergoing F/C using rigid instrument might have benefit from longer anesthetic time because it might relax smooth muscle of the cervix and uterus, making instrumentation easier.

Despite the beneficial effect of treatment on pain score, patient satisfaction index were not different between the treatment and the control groups. There were evidences showing that satisfaction index may not relate to pain score, [38] and management based only on satisfaction index might not be an adequate management for pain.

Safety

PCB has been shown to be an effective anesthetic technique for curettage.[3, 4, 18, 19] In the present study, the addition of IUA enhanced the effectiveness of PCB without increasing the incidence of side effects. The toxicity of anesthetic agent, e.g. lidocaine, is responsible for the side effects, which vary from mild to serious adverse events. Grimes and Cates [41] reported five deaths from the use of lidocaine in paracervical anesthesia. In the present study, adverse events occurred in approximately 30% of the patients. All of the side effects were mild and most of them resolved within a few minutes. The most common side effect found in the present study was cardiovascular side effects including palpitation and increase in blood pressure. These side effects were not typical for lidocaine, which usually causes bradycardia and hypotenstion.[34, 35] The cardiovascular stimulation in the present study was the side effect of adrenaline supplemented in lidocaine solution. The purpose of adding adrenaline in local anesthetic agents is to slow absorption rate, causing lower blood level of anesthetic agents, and as a consequence, reducing the toxicity. In spite of these benefits, anesthetic agents with adrenaline should not be used in patients with cardiovascular risks.

Cost

The cost of IUA in the present study was 128 baht. It meant that in order to reduce the severity of pain from moderate to mild degree, the patient undergoing F/C had to pay 128 baht more. This would add approximately 10% to the total expense that the patient had to pay for F/C at Siriraj Hospital. This extra cost could be cut by half if 1% lidocaine could be used instead of 2% because the patient could use lidocaine left over from PCB for IUA.

Limitation

This study may have limitation on generalizability. Because the technique of operation is controlled by only one investigator, the result of the study may not be applicable to F/C using different instruments or different techniques. Moreover, the inability to perform statistical adjustment of the incomparable baseline characteristic made the result less impressive. More studies with larger sample size are needed to confirm the result.

CONCLUSION AND RECOMMENDATION

The combination of PCB and IUA is more effective than PCB alone in reduction of maximum pain during F/C in the selected cases of patients with abnormal uterine bleeding. The addition of IUA does not increase side effects of PCB. These local anesthetic techniques are convenient, safe, simple, and effective for curettage. The combination of PCB and IUA can be an alternative for pain relief during F/C.

Although addition of IUA using 2% lidocaine seemed not to increase the adverse effects over those of PCB, it would be safer if total dose of lidocaine could be reduced. Therefore, further study to evaluate the effectiveness of IUA using lower dose of lidocaine (either lower concentration or less volume) is recommended.