CHAPTER V

DISCUSSION

This study shows that parecoxib group produces no significant opioid-sparing effects compared with placebo group in postoperative patients after knee replacement surgery. It might be due to inadequate sample size. Previous similar research[1] revealed the amount of morphine consumed during the first 24 hours in the control group (n=15) was 45±13 mg but in this study mean cumulative amounts of morphine consumed over 24 h was 27.67 ± 14.72 mg in the placebo group, and 20.57 ± 9.44 mg in the study group (table 4.2). The mean difference between groups was 7.1mg which tended to be significantly different (25.65%). From research hypothesis the author assumed that the amount of 24 hours morphine in the intervention group would be decreased by 25%. But the power of this study was 0.378 which was too small and insignificant to demonstrate advantageous effects of parecoxib sodium over the placebo. It is therefore surprising and disappointing that the overall effect of opioid sparing of parecoxib sodium had not been demonstrated by statistical analysis. This finding might be resulted from an inadequate number of subjects being enrolled in the study.

The use of parenteral non-steroidal anti-inflammatory drug has been reported to produce an opioid-sparing effect after major surgical procedure [15, 18, 19]. Tang et al. reported that the dose of 40 mg parecoxib sodium was found to reduce morphine consumption by 30 % during the first 24 hour after surgery[15]. Hubbard et al. reported parecoxib 20 mg and 40 mg produced significant opioid-sparing effects in postoperative patients after knee replacement surgery. Mean morphine consumption over 24 hour was reduced by 15.6% and 27.8% in parecoxib sodium 20 mg and 40 mg groups[18].

It is possible that the subjects in this study have higher pain threshold than previous similar research[1]. And this is not a complete study; there are only 36 subjects (21 subjects in parecoxib group and 15 subjects in placebo group) instead of 48 subjects in this study. All thirty-six subjects were selected by simple randomization;

there was no selection bias in this study. There was a big difference in number (28.574%) in each group because of using simple randomization. It would be better if the subjects were selected by other randomization such as block of four randomization or computerized selection. This study had not been completely carried out due to time limitation, sample size was therefore inadequate to conclude the results.

A reduction in opioid-type side effects was not demonstrated in this study. There are several other potential explanations for the absence of any reduction in opioid-type side effects. First, opioid symptoms were not prospectively identified for specific measurement in this study. And the degree of reduction in opioid use may not have been sufficient to result in clinically meaningful reductions in their side effects, or the study was too small to identify differences between treatment groups.

However, there was a significant correlation coefficient between morphine consumption and Visual Analog Scale in this study (r= 0.78). It therefore confirmed that patient-controlled analgesia device had provided adequate pain relief in this study.

Parecoxib sodium is a COX-2 selective inhibitor, which reduces the number of adverse events associated with nonselective COX-1 inhibition. These include upper gastrointestinal ulceration and bleeding, renal dysfunction, and bleeding related to platelet inhibition. In this study, two injections of parecoxib sodium 40 mg were safe and well tolerated, as most of the adverse events in each group were mild to moderate in intensity. There were no clinically important adverse gastrointestinal, platelet related, or renal side-effects observed in this trial, although the numbers studied were relatively small. Because of inadequate sample size, a reduction in opioid-type side effects was not demonstrated in the parecoxib sodium group.