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Intravenous Remifentanil PCA versus Levo-Bupivacaine with Fentanyl PCEA in the Management of Labour Pain

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ABSTRACT

In 2002, a study by Vyveret al showed that labour epidurals were commonly administered as either a continuous epidural infusion analgesia (CEI) or patient-controlled epidural analgesia (PCEA). Unfortunately, not all pregnant mothers are suitable for epidural analgesia. In order to overcome this problem, opioid-based analgesics such as pethidine and fentanyl were used as an alternative to labour epidural. However, older generations of opioids showed profound side effects on the mother such as sedation, respiratory depression, nausea, vomiting and itchiness while the newborn may have respiratory depression. The use of remifentanil in obstetric started in 1998 after an initial study established its pharmacokinetic profile in pregnant patients and neonates. Pharmacokinetic and pharmacodynamic properties of remifentanil makes it a safe alternative to epidural analgesia. In view of the above, we designed our study to compare the analgesic efficacy between intravenous remifentanil patient-controlled analgesia (PCA) and levo-bupivacaine with fentanyl PCEA in managing labour pain. Both methods applied background infusion to achieve a baseline level of pain control with the option to self-administer additional doses of analgesics to control pain. We used a simplified remifentanil PCA regimen with the aim to minimize unwanted maternal and neonatal side effects and at the same time, avoid tedious calculations that may give rise to error and thus, cause more harm. A total of 45 participants were recruited and randomly distributed to either the remifentanil group who received 20 µg boluses of remifentanil with 2 minutes lock-out time and 80-120 µg/hour remifentanil background infusion or the PCEA group who received 10 ml boluses of 0.05% levo-bupivacaine and fentanyl 2 µg/ml with 30 minutes lock-out time and 10 ml 0.05% levo-bupivacaine and fentanyl 2 µg/ml background infusion. The verbal reporting scale was used to measure pain score at 15 minutes intervals. Other outcomes assessed included maternal side effects and neonatal well-being. There were no statistical differences in pain scores between both groups during the first 45 minutes. However, from 60 to 120 minutes into the trial, the PCEA group had significantly lower pain scores than the remifentanil group but despite this difference, all participants were satisfied with pain control. Apart from significantly higher sedation scores in the remifentanil group, there were no significant differences in other maternal side effects and neonatal outcome. In conclusion, intravenous remifentanil PCA is a good alternative to PCEA in managing labour pain and it is safe for both the mother and newborn.

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Acceptability of Low Molecular Weight Heparin Thromboprophylaxis amongst Muslim Mothers in Sarawak

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ABSTRACT

Objective: 39 mothers succumbed to thromboembolism during the 2006-8 triennium in Malaysia, with similarly alarming trends observed in Asia-Pacific and Western countries alike. The significance of this condition is magnified in part, by the reduction in 'traditional' causes of maternal deaths such as haemorrhage and hypertensive disorders in pregnancy. A state-wide, documented, serial risk assessment programme has been in place since 2013, whereby women at risk were offered low molecular weight heparin (LMWH) as the first line pharmacological thromboprophylaxis. The benefits and safety of LMWH over unfractionated heparin and pentasaccharide has been adequately chronicled elsewhere. However, the manufacturing of LMWH involves cleavage of heparin derived from porcine intestinal mucosa, which may be of a concern to a section of the population. We examined the acceptability of LMWH amongst Muslim patients in the state. **Methods:** A retrospective review of 2,500 consecutive deliveries across three minor specialist district hospitals in Sarawak was performed. This was part of a larger study looking into the indications and uptake of obstetric thromboprophylaxis. Eligible patients were identified from the respective registries in Hospital Sri Aman, Hospital Sarikei and Hospital Kapit. These were then counter-checked with the electronic discharge notification and Informatik Kesihatan Sarawak (Sarawak Health Informatics) to ensure additional cases were not undetected. Confirmation of the patient's professed faith was based on the information contained in the registry or database above. In cases of ambiguity, case notes were traced for confirmation. **Results:** A total of 770 women who fulfilled the threshold criteria for thromboprophylaxis, of whom 164 (21.3%) were of Islamic faith. Of the 164 women, 115 (70.1%) opted for LMWH and 47 (28.6%) preferred unfractionated heparin. Two patients declined any form of thromboprophylaxis, one citing neonatal concerns while another opted for just mechanical thromboprophylaxis. Approximately half of the patients in our rural population opted for injections in their local clinic rather than self-administration. **Conclusion:** With appropriate and comprehensive counselling, the majority of Muslim mothers opted for LMWH. This would reduce the burden of repeated platelet monitoring for heparin-induced thrombocytopenia associated with unfractionated heparin. The information obtained from this study allowed better estimation of LMWH use in individual units and ensured a continuous chain of supply from resource-limited district pharmacies. Our findings however, cannot be generalized to the rest of the country, as religious edicts are under the purview of respective states and may influence the women or her partner's perception.