

Historical analysis of initial post-caesarean analgesia: Intravenous vs per rectal

Northern Health

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Background

Traditionally, initial perioperative analgesia post caesarean section was given as suppositories per rectum (PR). Unfortunately, rectal absorption of most drugs is frequently erratic, unpredictable and the suppository may easily be dislodged. Therefore, when intravenous (IV) formulations of paracetamol and a non-steroidal anti-inflammatory drug (NSAID) became available (parecoxib), a significant number of anaesthetists changed their practice and provided initial management of post caesarean pain IV, in preference to PR. An anonymous survey of obstetric anaesthetic practice revealed that approximately 70% of anaesthetists at Northern Health used IV analgesia, with the remainder (30%), using PR analgesia. As there were no outcome studies to guide superiority of one analgesic regime over the other, we felt that a study was warranted, as IV analgesia is vastly more expensive.

Method

A previously conducted audit of 100 women post caesarean section, revealed a 12.4% reduction in opioid requirements favouring IV analgesia, however, for the 3 unidimensional measurements of pain, there was no statistical difference between the groups, yet for a multidimensional pain questionnaire, - SF-MPQ, a statistical difference was found, favouring the group who had received IV analgesia. Based on this audit data, we calculated a sample size of 200 women to detect a 20% difference in SF-MPQ scores. This single centre, non-blinded randomised controlled trial recruited women undergoing an elective caesarean section and randomised them to receive initial postoperative analgesia via either the IV or PR route. Outcomes included opioid requirements, pain scores, quality of recovery (QoR-15) and cost of analgesia. Data were compared using medians.

Results

From September 2015 to May 2018, 199 women were recruited; one was excluded due to conversion to general anaesthesia. There were no significant differences in parity ($p=0.52$) or age (years) 31.1 (4.0) vs 31.9 (4.4) ($p=0.19$) for IV vs PR respectively.

No differences were found in the following pain assessments IV vs PR:

- ❖ Unidimensional pain assessment 1: 22.0 (10.0, 36.0) vs 21.0 (12.0, 40.0) ($p=0.92$)
- ❖ Unidimensional pain assessment 2: 1.0 (1.0, 2.0) vs 1.5 (1.0, 2.0) ($p=0.43$)
- ❖ Unidimensional pain assessment 3: 74.0 (52.0, 87.0) vs 75.0 (58.0, 83.0) ($p=0.83$)
- ❖ Multidimensional SF-MPQ pain assessment: 4.0 (2.0, 10.0) vs 5.0 (3.0, 8.0) ($p=0.76$)
- ❖ Quality of recovery (QoR-15) score: 123.0 (108.0, 132.0) vs 121.0 (107.0, 133.0) ($p=0.83$)

HOWEVER

The IV analgesia cohort required significantly less opioid (mg morphine equivalent) over their 3 day post-operative stay, 140.0 (110.0, 168.3) vs 155.0 (130.0, 184.9) ($p=0.005$). The total cost of analgesia (\$) was far greater for the group receiving initial IV analgesia 24.9 (23.6, 26.6), vs 9.9 (8.6, 10.9) ($p<0.001$)

Conclusion

Whilst IV analgesia reduced opioid use post-caesarean section, this decrease in requirement for opioids did not translate to lower pain scores or improved recovery. Given the lack of benefit in pain or quality of recovery and a higher average cost of \$15 per patient, PR analgesia may be more cost-effective. Switching to PR analgesia could yield an estimated annual saving of \$20,000, without compromising patient outcomes.