Analgesia post Lower Segment Caesarean Section: a local service evaluation comparing intrathecal and epidural diamorphine and fentanyl

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What we learned:

- Neuraxial fentanyl is associated with higher post-operative oral morphine use compared to diamorphine
- Neuraxial fentanyl is associated with earlier post-operative oral morphine use compared to diamorphine
- Neuraxial fentanyl results in less PONV compared to diamorphine
- **There was no difference in time to discharge**

Background

- Lower Segment Caesarean Section (LSCS) can be associated with moderate to severe pain which may delay recovery, impair bonding and breastfeeding and negatively impact upon maternal psychological wellbeing (1).
- In 2021, PROSPECT updated guidelines relating to LSCS which include intrathecal or epidural diamorphine or morphine aiming to reduce systemic opiate use(1).
- Ongoing diamorphine supply issues in the UK completely precluded its use on our labour ward in July 2021 and due to recent adverse events associated with intrathecal morphine in other patient groups the only opiate on formulary was fentanyl.

Methods

- A retrospective service evaluation was completed via note review of parturients undergoing LSCS in April 2021, when diamorphine was widely available, and July 2021, when it was not.
- Primary aim was to identify any difference in post-operative systemic opiate use. Secondary aims were a difference in post-operative nausea and vomiting, time to successful TWOC, time to discharge and any other adverse opioid related event.
- Approval was granted by the local clinical governance department.

Results

- 85 notes were reviewed. Fentanyl n= 53 (elective n=30, emergency n= 23, spinal n=44, epidural n=9). Diamorphine n= 32 (elective n= 15, emergency n=17, spinal n=28, epidural n=4).
- Those receiving fentanyl were more likely to require post-operative oral morphine compared to diamorphine (83% vs 44%) and had higher average oral morphine consumption during admission (27.5mg versus 14.1mg, p=<0.05, Figure 1). **There was no difference between elective and emergency cases.**
- Average time to first dose of oral morphine was also shorter for fentanyl: 348 mins vs 666 mins, p<0.05). See Figure 2.
- Post-operative nausea and vomiting was higher with diamorphine(N=7) than fentanyl (N=1).
- Average time to trial without catheter (TWOC) and discharge was similar (Fentanyl TWOC 12 hrs, discharge 38 hrs, diamorphine TWOC 16.5 hrs, discharge 39.1 hrs).
- Percentage of next day discharge: Fentanyl 60%, Diamorphine 54% .
- There were no reported adverse events.

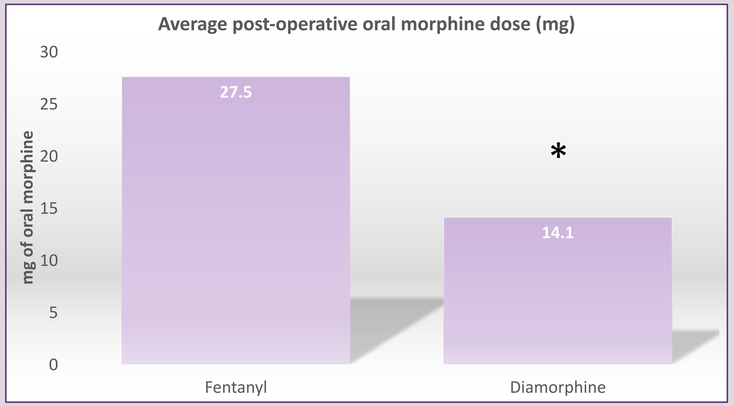


Figure 1: showing average post-operative oral morphine consumption for neuraxial fentanyl versus diamorphine. P<0.05

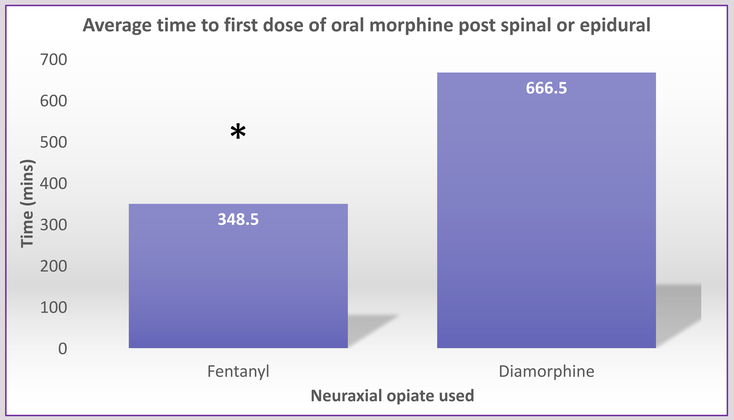


Figure 2: time in minutes to first dose of oral morphine following neuraxial fentanyl and diamorphine. P<0.05

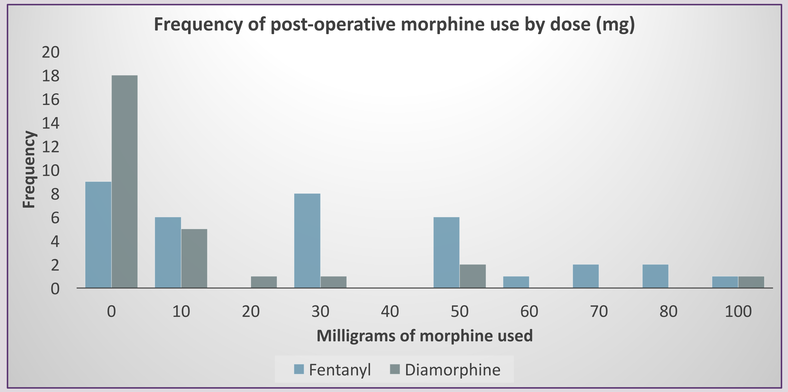


Figure 3: showing frequency of oral morphine use for neuraxial fentanyl versus diamorphine. 83% of those receiving fentanyl required post op morphine compared to 44% with diamorphine

Discussion

- Neuraxial fentanyl alone caused less PONV but provided shorter analgesia compared to diamorphine post LSCS and higher systemic opiate use. This is consistent with previous work (2)
- However there was no change in length of stay or effect on our enhanced recovery pathway as a higher percentage went home the next day with fentanyl.
- As a retrospective note review, prospective pain scores or satisfaction scores were not recorded and the collection of these would create more patient centred data with greater clinical relevance.
- The OAA have issued guidance related to neuraxial opiates during the diamorphine shortage, which is expected to continue. They advise to use intrathecal morphine alongside fentanyl in the absence of diamorphine(3) and these results would support this.
- PROSPECT guidelines also suggest other local anaesthetic infiltration techniques, such as Transversus Abdominis Plane blocks, when long acting opiates are not available.
- This project will guide future clinical decision making such as preservation of diamorphine supplies for labour ward and the need for intrathecal morphine guidelines relevant and applicable to a busy labour ward environment
- The results will also aid clinical decision making regarding neuraxial opiate choice depending on patient characteristics such as previous PONV or history of complex pain management
- Further projects can investigate other opiate sparing techniques, such as local anaesthetic abdominal blocks alongside short acting opiates and patient satisfaction surveys.

References

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2. CM Cowan, JB Kendall, PM Barclay, RG Wilkes. Comparison of intrathecal fentanyl and diamorphine in addition to intrathecal bupivacaine for caesarean section under spinal anaesthesia. BJA. 2002. 89 (3): 452-8
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