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Background

- Neuraxial anaesthesia is the cornerstone of labour analgesia
- There is still much debate about the optimum administration regime to maximize efficacy while minimizing undesired complications such as motor block.
- Programmed intermittent epidural regimen (PIEB) is increasingly being used as it is associated with lower rates of motor block and reduced local anaesthetic consumption compared to continuous epidural infusion (CEI), when combined with patient controlled epidural analgesia (PCEA).
- Similarly positive outcomes have been noted regarding pain scores and maternal satisfaction.
- The effects of neuraxial anaesthesia on maternal and obstetric outcomes has been shown to be influenced by the patient's Robson's Group.

Aim

- To investigate the introduction of a PIEB regimen on the rates of motor block and other obstetric and maternal outcomes.
- Presenting our results according to The Robson's Ten Group Classification System (TGCS).
- To assess whether the benefits of a PIEB regimen translate to institutions practicing the Active Management of Labour.

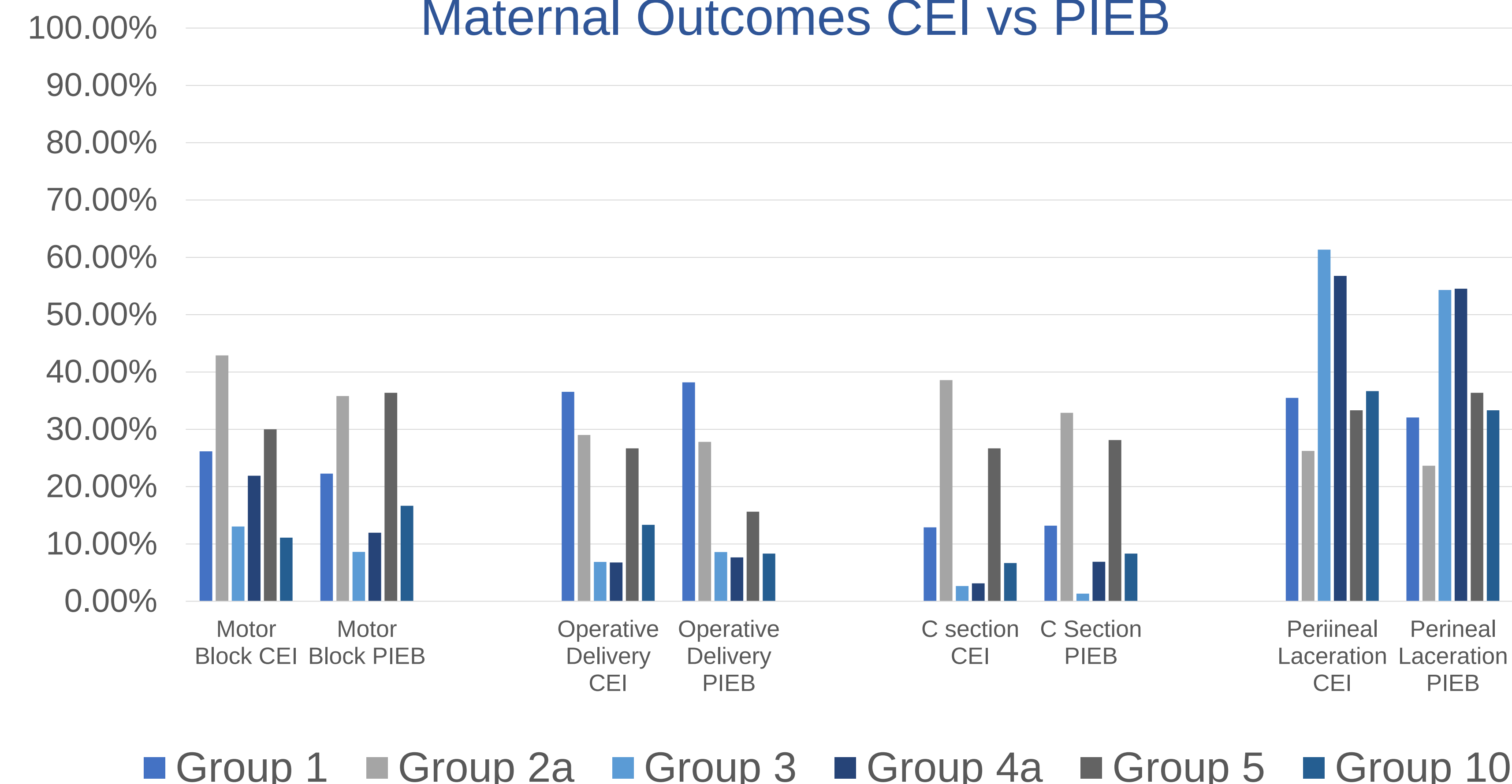
METHODS

- This was a single centre retrospective before and after cohort study.
- Data was collected retrospectively over two three-month periods.
- The first period was before introduction of PIEB , while the second period was after PIEB introduction.
- Data was extracted from the Maternal and Newborn Clinical Management System (MN-CMS) electronic health record at our institution including Baseline demographics.
- The primary outcome in this study was to assess the frequency of motor block using PIEB versus CEI.
- This was assessed via the modified Bromage score.
- Secondary outcomes measured were the presence of motor block, mean arterial pressures, presence of perineal lacerations, need for operative delivery and need for caesarean section.
- Motor block and obstetric outcomes are presented according to Robson's TGCS.

RESULTS

- 1081 women were identified for inclusion in the CEI+PCEA group, 949 women in the PIEB+PCEA group.
- Baseline characteristics of women in each group, according to Robson's TGCS reference, were similar.
- The primary outcome of this study, demonstrated that a motor block was present in 28.41% of women in the pre-PIEB group and 22.47% of women in the after-PIEB group .
- PIEB did not significantly affect the mode of delivery, or frequency of perineal laceration.
- A significant reduction in the total duration of labour was observed in the Post-PIEB group
- Logistic regression model revealed continuous epidural infusion was significantly associated with risk of motor block.
- Length of labour was also significantly associated with risk of motor block.
- Operative delivery was significantly associated with presence of a motor block, labour length and gestational age.
- Changes in motor block and obstetric outcomes are presented according to Robson's TGCS below. There were no differences in proportions according to Robson's group before and after PIEB.

Maternal Outcomes CEI vs PIEB



Discussion

- PIEB demonstrated an improvement in the rates motor block in our institution from 28% to 22%.
- The benefit of the PIEB regimen was also demonstrated by the logistic regression model, which found the CEI regimen was associated with an increased risk of motor block.
- We believe this study to be the first demonstrating the benefit of PIEB in the Irish population demonstrating the feasibility and efficacy of PIEB versus CEI in reducing rates of motor block.
- Our institution practises active management of labour, and has this has been shown to reduce the incidence of prolonged labour leading to reduced maternal and fetal morbidity.
- Our results demonstrated an overall reduction in the length of labour, which is in line with the principles of active management .
- Thus the benefits of PIEB extend to institutions practising the active management of labour.
- Our study is the first to our knowledge to demonstrate the benefits of PIEB in improving motor block across various Robson's groups.
- Presenting our results according to Robson's Classification demonstrated that certain groups are more likely to suffer from motor block, operative delivery, Caesarean section, and perineal injury
- The group most affected by motor block was Group 2a.
- This is likely due to 'dysfunctional labour' in primiparous women requiring induction.
- Our results demonstrated the difference in motor block and the obstetric outcomes, and we believe this to be an important finding and one that has not received much attention in the literature.
- Despite the improvement in motor block observed with the use of PIEB, rates of motor block remain high with an association to operative delivery in our study.

Recommendations

- A prospective randomized control trial comparing PIEB and CEI to better assess this question and draw definitive conclusions.
- Further investigation into different concentrations of local anaesthetic regimes employed.