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Editorial

Tailoring postoperative pain management with a procedure-specific approach: how to best apply this concept to caesarean deliveries

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Undoubtedly, no patient should experience acute severe pain after surgery, and multimodal analgesia ensuring opioid-sparing approaches should strongly be promoted for optimal postoperative recovery. With that premise in mind, the procedure-specific pain management (PROSPECT) working group of anaesthetists and surgeons has been formulating practical and evidence-based recommendations *"that facilitate clinical decision-making across all stages of the peri-operative period on a procedure-specific basis"* [1,2]. The updated PROSPECT methodology follows a rigorous approach that begins with a literature search and review process according to reporting items for systematic review and meta-analysis protocols (PRISMA) recommendations [2]. The primary outcome measure is designated as *"postoperative pain intensity scores at rest and/or pain intensity during activity (when available) with a change of more than 10 mm in pain scores considered clinically relevant"* [3]. The most recent PROSPECT guidelines have brought light on optimal pain management after straightforward surgical procedures such as hallux valgus repair, rotator cuff repair and oncological breast surgery [4–6].

In this issue of *Anaesthesia*, the PROSPECT methodology was applied to elective caesarean deliveries [7]. A previous review and PROSPECT recommendations was published in 2014 [8]; however, an update was deemed necessary in light of new studies and novel analgesic interventions, such as quadratus lumborum (QL) blocks. The authors should be congratulated for their work since improving the pain trajectory after caesarean delivery will ensure: a better maternal experience; the ability to care for the baby including breastfeeding; a shorter length of stay; and reduced risk for persistent opioid use (and opioid use disorder), postpartum depression and chronic pain [9]. The peri-partum period should be viewed as a unique opportunity to make a real difference for mothers and newborns, beyond pain scores during the first 24 hours, by reducing opioid exposure and consumption and improving functional recovery and mental health.

Bearing in mind that clinical recommendations for post-caesarean pain management should take into account: the specific obstetric scenario resulting in the indication for a caesarean delivery ('procedure-specific'); the patient's unique characteristics and pain history ('patient-specific'); and the outcomes deemed important for postpartum recovery ('outcome-specific'), we question the value of the PROSPECT methodology in this specific clinical setting.

Procedure specific

Despite numerous efforts to reduce caesarean delivery rates worldwide [10], the current rates in most countries approach 30%, with a majority of unplanned, urgent or

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emergent cases. While the PROSPECT authors acknowledge the heterogeneity of clinical scenarios and the contrast between an emergency caesarean under general anaesthesia and an elective case under spinal anaesthesia, this review inherently only addresses pain management for the minority of cases: those scheduled in a planned fashion. Therefore, it might be time to adopt a novel approach to classify caesareans deliveries according to the specific obstetric context and expected pain trajectory, since most caesarean deliveries are neither planned nor scheduled procedures [11]. Of crucial importance, there is evidence that the pain experience from a repeat caesarean delivery, with the possibility of residual scar hyperalgesia from the prior surgery will result in increased analgesic intake [12]. Additional evidence is emerging that intrapartum caesarean delivery with prolonged duration of labour is associated with poor functional recovery and increased pain burden [13], as well as that of increased opioid consumption in the setting of a failed trial of labour after previous caesarean delivery [14]. Therefore, classifying deliveries according to the unique obstetric scenario appears indispensable in today's practice, if the overarching goal of postoperative pain guidelines is truly to provide the most tailored procedure- and patient-specific approach. The Robson 10-group classification system is based on obstetric and labour characteristics: parity (nulliparous vs. multiparous); plurality (singleton vs. multiple gestation); fetal presentation (cephalic, breech or transverse/oblique); gestational age (≥ 37 vs. < 37 weeks' gestation); type of labour (spontaneous, induced or not in labour); and history of prior caesarean delivery. It may be helpful in categorising deliveries, although it does not identify the indications for caesarean delivery nor does it capture the full array of maternal comorbidities. The classification system was designed to allow comparison of caesarean delivery rates between hospitals or countries and over time by obstetric scenario, in order to compare 'apples with apples'. Clearly, each scenario resulting in a caesarean delivery results in a different clinical pathway and should be considered as a 'contextual procedure' rather than the actual surgical procedure itself.

Patient specific

The obstetric setting is undeniably different from any other surgical setting, and while the surgical procedure itself (Pfannenstiel incision with a standardised technique) and the patients (all women in childbearing age) may appear homogenous, women undergoing a caesarean delivery have a variety of expectations and postpartum duties (e.g. breastfeeding, caring for their newborn) that differ immensely from the general population. It has been shown that patient choice is an important factor to take into account when tailoring post-caesarean analgesic approaches [15]. In addition, assessments should continue beyond the immediate surgical period, as adverse outcomes related to poorly controlled pain may arise beyond the usual 72 postoperative hours. For example, the 11-item obstetric-specific quality of recovery score (ObsQoR-11) may be ideal to assess immediate functional recovery from caesarean deliver [16,17], but it fails to evaluate long-term and psychological recovery.

Additionally, evaluating the efficacy of analgesic interventions (including placebo) through a review of randomised clinical trials only allows outcomes to be assessed within the cohorts included in such studies. By study design, an overwhelming majority of pain studies do not enrol patients with mental health issues or substance abuse, a history of chronic pain or chronic opioid use, or those with complicated surgical outcomes. These are the exact specific circumstances where analgesic adjuvants may be most beneficial. Therefore, we have to rely on the inclusion criteria in studies on postpartum pain outcomes after elective caesarean deliveries, and unfortunately while the procedure may a priori seem specific, such studies inherently did not include a significant proportion of patients, further reducing the generalisability of the PROSPECT recommendations for caesarean deliveries.

Defining optimal pain management after caesarean delivery

Defining the minimal clinically important difference is key for peri-operative pain studies assessing interventions and quality of recovery. It has long been demonstrated that every 1-point (equivalent to 10 mm) increase in acute pain score after delivery may indeed be associated with postpartum depression (8.3% increase) and persistent pain (12.7% increase) at 8 weeks [18]. That large prospective observational study emphasised the importance of acute pain management in reducing complications up to 8 weeks postpartum, and formed the basis for promoting multimodal analgesia after caesarean delivery [19]. Nonetheless, postpartum recovery remains in general poorly defined and further studies are needed to better define all domains for patient-reported outcome measures (PROM) [20]; quite obviously though, these should include pain and psychological recovery. To ensure tailored pain management for women undergoing caesarean deliveries, both a thorough pre-operative assessment of a woman's individual risk-factors for acute pain, persistent opioid use, postpartum depression and chronic pain, and long-term

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monitoring of physical and psychological recovery are required to fully evaluate the success of an intervention. Consequently, one cannot help but wonder whether setting the primary target to a 'decrease in 10 mm in pain scores' might not be terribly reductionist when making recommendations for post-caesarean delivery analgesia during a worldwide opioid crisis.

We, therefore, propose that guidelines for management of post-caesarean pain include all cases, proposing algorithms for each specific scenario ('the procedure'), according to patient-specific characteristics ('the patient') and accounting for the specific PROMs deemed important for recovery after caesarean delivery ('the outcomes'). This comprehensive approach might better serve women and offer obstetric anaesthetists, obstetricians, nurses and midwives, the much needed guidance to prevent, assess and manage post-caesarean pain while optimising postpartum recovery.

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