

## Editorial

# What is 'genuine' failure of neuraxial anaesthesia?

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Accepted: 15 March 2022

Keywords: caesarean section; neuraxial anaesthesia; pain; regional anaesthesia

This editorial accompanies an article by Patel et al. *Anaesthesia* 2022; **77**: 598-604.

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What is 'genuine' failure of neuraxial anaesthesia? In their systematic review, Patel et al. want to give an answer to this question, but they risk gravely underestimating the issue [1]. Irrespective of the precise definition of neuraxial block failure, inadequate anaesthesia remains a euphemism for a failing neuraxial block: it can cause severe distress to the patient.

Clinicians involved in the anaesthetic care of women during caesarean section must be mindful of the vulnerability of their patients. The mother is awake and typically not sedated while undergoing major abdominal surgery for a seismic life event: the arrival of her baby. This is a rare – or unique – experience, the memory of which will be greatly influenced by the quality of care she receives.

Of all the people in an operating theatre, the obstetric anaesthetist may be the only person whose sole focus is on the mother. Rather than taking patients' trust for granted, clinicians must work to earn it. Vogel and Homitsky suggest, "*Our expertise in crisis management should also encompass acute emotional crisis management and the acceptance of our role as 'guardians of psychological safety in the operating theatre'*" [2]. If a mother reports being in pain, the clinician must believe her and take appropriate action. Failure to do so compounds distress.

## Complaints

While most patients do not wish to complain or sue – even when care is poor – we can learn from patterns of litigation. In 2009, *Anaesthesia* published an analysis of litigation claims relating to inadequate anaesthesia against the NHS in England from 1995 to 2007 [3]. The severity of

reported harm after awareness under regional anaesthesia was found to be equivalent to that after awareness under general anaesthesia. The authors commented that, as regional anaesthesia was considerably less frequent than general anaesthesia, a similar prevalence of litigation indicated a notably higher incidence of cases due to regional anaesthesia failure, with 83% occurring in an obstetric setting. The analysis of litigation claims from 2008 to 2018 shows an encouraging reduction in claims relating to both obstetric anaesthesia and regional anaesthesia [4]. However, a high proportion of claims are still related to pain or awareness during caesarean section. Within obstetric anaesthesia claims, 34% involved severe outcomes, and these include cases graded psychologically severe using the National Patient Safety Agency (NPSA) tool adapted to include definitions of psychological harm [5].

Complaints will always be the tip of the iceberg. Even if women have experienced inadequate anaesthesia, new mothers have more pressing things to do than consider suing a hospital. Moreover, the most vulnerable patients are unlikely to have the knowledge, confidence and resources to access the legal route. It is important for the anaesthesia specialty to work towards understanding neuraxial anaesthesia failure as well as raising standards to mitigate inadequate anaesthesia and to manage intra-operative pain appropriately.

## Systematic review

Patel et al. undertook a systematic review with 54 studies (3497 patients) which were widely distributed

internationally [1]. With inadequate neuraxial anaesthesia defined as the need to convert to general anaesthesia, the need to repeat or abandon a planned primary neuraxial technique following incision, unplanned administration of intra-operative analgesia (excluding benzodiazepines) or unplanned epidural drug supplementation, the overall prevalence was found to be 14.6%. The prevalence of conversion to general anaesthesia was 0.06%.

While 14.6% needing supplemental analgesia or anaesthesia may seem high, it raises concern around how much higher this might be with the time pressure of emergency caesareans, especially considering those procedures are often out of hours and undertaken by trainees.

Patel et al. believe the low rate of conversion to general anaesthesia suggests “*significant failure of the neuraxial technique is rare during elective surgery.*” They note their findings present a lower conversion rate compared with previous reports but, other than suggesting this might be due to only looking at elective cases, they accept the finding. With relatively small trials and generally low levels of conversion to general anaesthesia, few cases would be expected. It is possible the structure of randomised controlled trials creates bias for clinicians, making them less likely to convert to general anaesthesia.

Nonetheless, Patel et al. appear to question the definitions of failure used by others rather than consider whether the most appropriate measure of ‘significant failure’ is conversion to general anaesthesia. In doing so, they make three notable assumptions. The first constitutes a simple assumption that there was no under-reporting. The second is that all the women not converted to general anaesthesia received satisfactory analgesia from whatever supplementary analgesia/anaesthesia they received. Finally comes the assumption of asserting that only conversion to general anaesthesia is indicative of ‘severe breakthrough pain’. These assumptions are problematic.

## Inadequate anaesthesia

Anaesthetists do enjoy high levels of success with regional blocks. Unfortunately, for some, experience of success may lead to confirmation bias, making it easier to doubt the patient than question the block. Some patients who experience intra-operative pain complain of insensitivity from clinicians, feeling their concerns were dismissed or belittled [6–8]. Unwillingness to believe a patient’s experience results in delays to supplementary analgesia or anaesthesia being provided. In analysis of one database of medicolegal claims, in 33% of cases of intra-operative pain during caesarean section, the anaesthetist did not appear to

accept that the block had failed, despite evidence to the contrary, and was reluctant to convert to general anaesthesia [7]. For the women represented by such data, any supplementary measures received did not prove sufficient.

While Patel et al. note the lack of consensus regarding the definition for inadequate anaesthesia during caesarean section, commenting that inconsistent definitions across studies investigating similar clinical problems limit their value, their conclusion is that the study’s definition “*likely overestimates the problem of severe pain due to genuine failure of neuraxial anaesthesia.*” It is a considerable assumption then to assert only conversion to general anaesthesia is indicative of ‘severe pain’. **What of, for instance, the 6.6% of patients in their study who had spinals and received supplementary intravenous opioids?** The authors are implying they do not consider any of those women could have experienced severe pain. Indeed, across all groups, they consider only 2 out of 510 women qualify as ‘genuine failure’ of neuraxial anaesthesia.

In an era of patient-centred care, it is a curious choice to settle on counting a single clinician-determined intervention when pain is determined in the experience of the patient. Patients experiencing awareness under general or inadequate regional anaesthesia directly mention pain “*more often, more times, and qualified by more adverse adjectives and phrases (‘horrific’, ‘terrifying’, ‘excruciating’, ‘overwhelming’, etc.) than any other feature*” [6]. Other researchers have defined failure in terms of failing to achieve a pain-free operation. For example, Kinsella’s single-centre audit found the rate of conversion to general anaesthesia to be 0.8% but found failure to achieve a pain-free operation to be 6% with spinals, 24% with epidural top-up and 18% with combined spinal–epidural [9].

Taking conversion to general anaesthesia as the measure by which ‘significant failure’ is accepted may lead to underestimating and normalising the prevalence and severity of harm to those not undergoing general anaesthesia, while providing false reassurance to clinicians around the efficacy of neuraxial blocks.

## Pain and trauma

Limitations in the data available leave many questions unanswered. Is conversion to general anaesthesia seen as a ‘failure’ on the part of the anaesthetist? Do anaesthetists have differing thresholds at which to consider conversion to general anaesthesia? Are there situations where an anaesthetist’s threshold for conversion may differ? Are women being informed that neuraxial blocks may fail? Are women told general

anaesthesia is an option if they experience intra-operative pain? Is it possible some women want to stay awake and will be prepared to accept some pain in order to do so? If women express concerns, are their concerns acted upon? There are many opportunities for research and, when it comes to understanding intra-operative pain, patient experience and patient-reported measures should be at the centre of quality improvement. Further, it is worth considering whether there are unintended consequences of audit targets, which may discourage clinicians from conversion to general anaesthesia.

*"Emotional and psychological trauma are safety errors, whether or not a patient leaves the hospital physically intact"* [10]. Psychological trauma may manifest in postpartum depression, post-traumatic stress disorder (PTSD) and reduced childbearing in patients who experienced pain during caesarean delivery [2,11,12].

Patel et al. note an association between obstetric labour pain and postpartum depression but not the association between experience of inadequate anaesthesia and development of PTSD. While in no way diminishing pain experienced in labour, it is an error to consider intra-operative pain for caesarean section in the same terms as labour pain. The respective experiences have been described as distinctly different [12].

Any nuance between definitions of 'inadequate anaesthesia' and 'significant failure' will be lost to the woman lying open on the operating table experiencing intra-operative pain. It is understandable such experience is likely to be perceived as involving threat to one's life or physical integrity, the DSM-V description of traumatic events [13]. Notably, the DSM-V includes witnesses of a traumatic event and, with partners present at caesarean sections, they should be considered too.

Psychological trauma is a recognised consequence of awareness during general anaesthesia and is reported by patients who feel pain under regional anaesthesia [5,6,7,12,14]. Mihal et al. found *"claims of PTSD were as frequent in claims of inadequate regional anaesthesia as in claims of awareness during general anaesthesia"* [3]. One study found anaesthetic complications were a significant predictor of postpartum PTSD and PTSD profile (clinically significant PTSD symptomology but not meeting full criteria), while emergency situations and neonatal complications did not prove to be predicative [14].

Patients can experience psychological trauma both as a result of an adverse outcome and as a result of how the incident was managed. While a clinician may believe their patient is physically safe, the woman feeling pain during a

caesarean section may not feel safe. It is important clinicians listen carefully to patients. Hearing what is said, and how, contributes to clinician's situational awareness. Moreover, effective communication functions as the basis for improving patients' perceived sense of control.

The difficulty for a clinician may be not knowing how patchy the block is, nor how extreme the pain but, as McCaffery wrote, pain is whatever the person experiencing it says it is [15]. If a woman says she is in pain, believe her. She is the only one who knows.

## Testing the block

Each spinal anaesthetic which fails is more than a statistic: it affects a real person, someone who deserves good care. Unlike complications which occur with little warning, neuraxial block failure is one which can, to a large extent, be controlled for in advance by testing the block well. In the UK, there has been significant variation in practice of testing neuraxial blocks, and a lack of consensus about what to test, how to test and what constitutes an adequate block. Moreover, there has been no established algorithm for managing a neuraxial block that is inadequate for surgery. Where experienced anaesthetists have varied and idiosyncratic strategies for care, trainees are left without a framework from which to develop their practice. The identification of themes within medicolegal claims necessitated developing pragmatic advice to support anaesthetists caring for women during caesarean sections [7]. The Obstetric Anaesthetists' Association guidance (published in this issue), *Prevention and management of intra-operative pain during caesarean section under neuraxial anaesthesia: a technical and interpersonal approach*, sets out to rectify this previous lack of guidance and to promote standardisation [16].

Good neuraxial blocks make clinicians seem like magicians to their patients. However, neuraxial blocks do not always work. Too often the end has been used to justify the means and women have been told, 'the baby is alright, that's all that matters'. Yet safety in healthcare is a constantly moving target and conceptions of both harm and preventability drive standards [17]. With an understanding of the long-term psychological impact of trauma comes recognition that physical safety is the bare minimum of what should be expected during caesarean sections.

## Acknowledgements

Since experiencing neuraxial block failure during a caesarean section in 2010, I have shared my perspective on patients' experiences and the importance of appropriate follow-up [12,18]. I am grateful to all the compassionate and

conscientious clinicians who have committed to learn from my and others experiences. Thank you. I am one of the authors of the Obstetric Anaesthetists' Association guidance [16].

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