



# Unlocking maternal health: labour epidurals and severe morbidity

## A viable protective option for at-risk pregnancies

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In its guidelines for intrapartum care to improve the experience of childbirth, the World Health Organization recommends epidural analgesia for healthy pregnant women who express a desire for pain management during labour, depending on individual preferences.<sup>1</sup> Common maternal concerns expressed during the informed consent process are whether epidural analgesia will have negative effects on both mother and baby or the delivery. Evidence to address these concerns, however, remains limited. In a linked paper, Kearns and colleagues (doi:10.1136/bmj-2023-077190) report the results of an investigation into a less commonly discussed concern of epidural analgesia during labour—the effects on severe maternal morbidity (SMM).<sup>2</sup> Their findings showed a notable positive association, with epidural analgesia linked to a 35% reduction in SMM. This important benefit was particularly noticeable among women with a medical indication for epidural analgesia during labour and those undergoing preterm birth. The implications of these findings for obstetric anaesthetic practice and maternal health warrant careful consideration and further exploration.

Regardless of how it is defined, SMM arises from a combination of medical, obstetric, socioeconomic, and lifestyle factors, and it poses a substantial global burden.<sup>3,4</sup> Not only does SMM pose a risk to maternal health, but it also has a detrimental effect on neonatal outcomes. Efforts to mitigate both SMM and maternal mortality require a multifaceted strategy encompassing improved access to high quality maternal healthcare, early identification of pregnancies at risk, recognition and intervention when complications arise during childbirth, and enhanced postpartum care.<sup>5</sup> Kearns and colleagues found that epidural analgesia during labour was strongly linked to a statistically significant reduction in SMM, suggesting that epidural analgesia might be another factor in a suitable interventional strategy. Decision makers should consider this new benefit to improve maternal health outcomes.

Although Kearns and colleagues found a strong association between epidural analgesia during labour and reduced risk of SMM, they did not investigate potential mechanisms behind this protective effect. Cardiac output and respiratory rate typically increase during labour owing to physiological demands, pain, and the hormonal stress response associated with labour. Epidural analgesia can substantially reduce these factors and could help to explain a protective effect in some groups of women, such as those with underlying cardiac or respiratory disease in whom the role of epidural analgesia has been established.<sup>6</sup> Another potential explanation for the protective effect could relate to the increased medical care and

attention individuals with epidurals in place receive, thereby enabling more timely detection and response to incipient morbidity. An epidural in situ allows for swift conversion from analgesia to anaesthesia for emergency caesarean birth, reducing the need for general anaesthesia with its increased risks of morbidity and mortality.<sup>7</sup> A further possible explanation for the reduced risk of SMM in Kearns and colleagues' study was that only 20% of women opted for an epidural, with most of the others choosing another form of analgesia, such as nitrous oxide or an opioid. These alternative pain relief methods could have negatively influenced outcomes and contributed to SMM. Although published evidence for major detrimental effects of nitrous oxide or opioid use in labour is lacking, both have shown significant inferiority to epidural analgesia for pain relief during labour. Understanding the mechanisms behind the protective effects against SMM of epidural analgesia during labour could provide valuable insights for targeting interventions, particularly in settings where access to epidural analgesia may be limited, such as in low and middle-income countries.

The study by Kearns and colleagues used the US Centers for Disease Control and Prevention criteria for SMM, which describe physical outcomes only. Concern is, however, growing about the importance of psychological outcomes. Some studies suggest a potential association between epidural analgesia during labour and a lower risk of postpartum depression, although more research is required to understand this association.

One of the most critical questions is how these findings should be incorporated into clinical practice. The rate of labour epidural use varies globally, with findings from a survey of 13 high income countries ranging from 10% to 83%, although usage rates in low and middle income countries were much lower.<sup>8,9</sup> The epidural rate of 20% in Kearns and colleagues' study was observed in a dataset from an integrated national healthcare system, in which care is free at the point of access and not limited by personal financial circumstances. Furthermore, within high income countries, important inequalities have been found in the uptake of epidural analgesia during labour, with much lower rates in, for example, minority ethnic groups and socioeconomically deprived communities.<sup>10,11</sup> With these inequalities in mind, Kearns and colleagues' findings might serve as a catalyst for initiatives aimed at improving equitable access to epidural analgesia during labour, potentially mitigating SMM and improving maternal health outcomes across diverse socioeconomic and ethnic backgrounds.

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