

## EDITORIAL

# Enhancing maternal care by anesthesiologists: the role of 5-HT3 antagonists in preventing nausea and vomiting in cesarean section deliveries

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As with any other birth, the period following a cesarean section (C-section) is filled with commitments and activities for both the mother and the newborn. It begins with the practice of skin-to-skin contact,<sup>1</sup> the initiation of breastfeeding,<sup>2</sup> getting to know each other, and finding the best sleep-wake rhythm; it is a period full of emotions and possible psychological consequences for the mother.<sup>3</sup> In the case of women undergoing a C-section, this is intertwined with the issues and consequences of surgery and therefore with all the side effects of drugs and techniques used to optimize the postoperative course.

Among the most common occurrences following a C-section are nausea and vomiting, which are very common because of anesthetics, analgesics, anesthesiological and surgical techniques and peripartum medications.<sup>4</sup>

Nausea and vomiting during and after C-section deliveries are multifactorial, involving physiological, pharmacological, and psychological elements. The release of serotonin (5-HT) within the gastrointestinal tract plays a crucial role in triggering nausea and vomiting through the activation of 5-HT3 receptors. Consequently, blocking these receptors with 5-HT3 antagonists offers a rational approach to mitigating these adverse effects.

The pharmacological class of 5-HT3 antago-

nists plays an essential role in the treatment of perioperative nausea and vomiting, which could strongly affect maternal well-being during this period of significant impact on her psycho-physical conditions. Cesarean section (C-section) deliveries are among the most common surgical procedures worldwide, offering a vital option for maternal and fetal well-being in various clinical scenarios. However, they come with inherent risks, including postoperative complications such as nausea and vomiting, which can significantly impact the mother's comfort and recovery.<sup>5</sup> In addressing these challenges, the utilization of 5-HT3 antagonists presents a promising avenue for enhancing maternal care.

Clinical studies have demonstrated the efficacy of 5-HT3 antagonists, such as ondansetron,<sup>6</sup> granisetron<sup>7</sup> and tropisetron,<sup>8</sup> in preventing nausea and vomiting in parturient undergoing C-section deliveries. These agents exert their antiemetic effects by antagonizing 5-HT3 receptors in the central nervous system and peripheral vagal nerve terminals, thereby interrupting the emetic reflex pathway. Moreover, their favorable safety profiles make them suitable options for use during pregnancy and in the postoperative period.

Perioperatively, administering 5-HT3 antagonists as part of multimodal prophylaxis regimens has shown significant reductions in the

incidence and severity of nausea and vomiting in parturient undergoing C-sections under spinal or general anesthesia. Furthermore, their continued use in the postoperative period contributes to sustained antiemetic effects, promoting maternal comfort and facilitating early ambulation and oral intake.<sup>5</sup> By effectively preventing nausea and vomiting, these agents contribute to a positive birth experience for mothers, facilitating their recovery and fostering early maternal-infant bonding.

However, several considerations warrant attention. These include the potential for adverse effects such as headache, constipation, and QT interval prolongation, necessitating cautious dosing and patient monitoring.

The work by Qiu N *et al.*,<sup>9</sup> edited here, effectively reviews the literature by comparing the efficacy of various drugs belonging to this category and provides valuable information for their use in different perioperative periods and for different purposes. In their meta-analysis, high dosage of Ondansetron appears to obtain the best results to prevent perioperative nausea and vomiting, Granisetron 3 mg and Tropisetron 2 mg results effective options for preventing intraoperative nausea and intraoperative vomiting, respectively. The conclusions are intriguing but tentative and therefore further research is needed to optimize dosing regimens, explore the comparative efficacy of different 5-HT<sub>3</sub> antagonists, and assess their long-term safety in this specific patient population.

In conclusion, the use of 5-HT<sub>3</sub> antagonists emerges as a cornerstone in the comprehensive management of nausea and vomiting in parturi-

ent undergoing C-section deliveries. By targeting the underlying pathophysiology of these symptoms, these agents offer effective prophylaxis with favorable safety profiles, enhancing maternal care and optimizing birth outcomes.

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### Conflicts of interest

The authors certify that there is no conflict of interest with any financial organization regarding the material discussed in the manuscript.

### Authors' contributions

Both authors read and approved the final version of the manuscript.

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