Reducing Spinal-Induced Hypotension in Cesarean Sections with Ondansetron

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Abstract

Hypotension is the most common complication of spinal anesthesia for cesarean delivery, partly attributed to the cardioinhibitory Bezold-Jarisch reflex. Evidence suggests this response may be attenuated by ondansetron. This project aimed to improve ondansetron timing via evidence-based research dissemination. A literature review informed the development of educational brochures distributed to anesthesia providers at a single hospital. Pre-intervention surveys indicated 73% of providers administered ondansetron prior to spinal onset, while post-intervention surveys showed 100% compliance. These findings suggest that knowledge dissemination effectively enhances best practice compliance, though results are limited by the small, single-center design.

Introduction

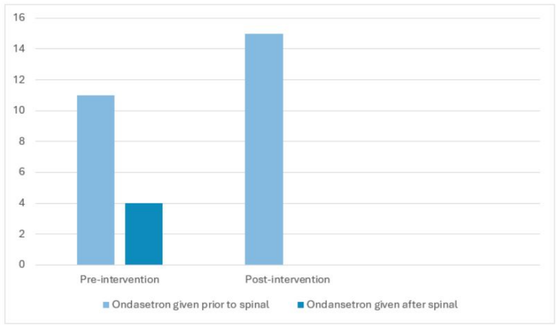
When considering anesthetic management for labor and delivery patients, spinal anesthesia is considered the preferred technique for cesarean delivery due to its rapid onset, effective sensory blockade, and relatively low maternal and fetal risk (Ng et al., 2004). However, the most common complication of spinal anesthesia is hypotension, potentially leading to adverse effects such as nausea, vomiting, decreased placental blood flow, and compromised neonatal health (Barash et al., 2017). Parturients experiencing hypotension must be managed promptly to ensure the safety of the mother and child. Several strategies are commonly implemented to treat spinal-induced hypotension, yet a limited number of strategies are focused on prevention. Ondansetron, primarily used as an antiemetic, has shown potential for attenuating hypotension when given at an optimal time prior to the administration of spinal anesthesia (Tatikonda et al., 2019). This legacy project aims to continue the endeavors of alumni students Sydney Reeder and Donia Richmond to improve anesthetic practice through the provision of evidence-based information on the efficacy of administering ondansetron prior to spinal-anesthesia. Reeder and Richmond (2023) conducted a change in practice through the timing of ondansetron administration prior to spinal anesthesia for cesarean sections in a single hospital setting. The goal of this project will be to implement a congruent process change by educating anesthesia providers, in the form of a brochure, on the use of four to eight milligrams of ondansetron intravenously five minutes prior to spinal anesthesia as opposed to ondansetron given after the onset of spinal anesthesia.

Methods

- A pre-education survey was distributed to the anesthesia staff asking current practices regarding the uses of ondansetron to prevent hypotension over a 31 day period.
- An educational brochure was then distributed to the anesthesia staff regarding the benefits of using ondansetron prior to spinal anesthesia to prevent hypotension.
- A post education survey was then given to all anesthesia staff regarding their use of ondansetron for hypotension control post spinal anesthesia over a 30 day period.

Results

- Pre-education survey resulted in 15 responses showing 93% gave ondansetron sometime during the case and 73% gave ondansetron during the recommended time frame.
- Post-education survey resulted in 15 responses showing 100% gave ondansetron during the recommended time frame.
- Of the 15 post-education responses, 100% agreed to continue the use of ondansetron during the recommended time frame for future spinal anesthetics.



Discussion

The results of this initiative demonstrate that targeted, evidence-based education and provider-to-provider discussions significantly impact the administration of ondansetron prior to spinal anesthesia for cesarean sections, achieving 100% participant compliance regarding recommended dosing and timing. These findings align with Reeder and Richmond (2023), who reported a compliance increase from 46% to 91% following a similar educational intervention. While baseline adherence rates may differ across institutions due to variances in provider management styles and facility cultures, the data underscores the critical role of disseminating evidence-based knowledge to standardize best practices and optimize patient outcomes.

Conclusions

- Disseminating educational information, backed by peer-reviewed studies, is an effective way to implement change in anesthesia practice in a single facility hospital setting.
- Providing evidence based studies to providers increased the use of ondansetron for cesarean delivery to 100%.

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