


## Anesthesia in cesarean delivery in patients with eclampsia or preeclampsia: A systematic review

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### ABSTRACT

Eclampsia and preeclampsia are serious complications of pregnancy that pose significant risks to maternal and fetal health, especially during cesarean delivery. This study reviewed the literature on anesthetic approaches in cesarean sections for patients with these conditions, using the SciELO, PubMed, and LILACS databases. The methodology followed the PICO model, focusing on pregnant patients with eclampsia or preeclampsia, comparing regional and general anesthesia, and analyzing maternal and neonatal outcomes. The results indicate that regional anesthesia is the preferred technique in 70% of cases of mild to moderate preeclampsia, with lower complication rates. In contrast, general anesthesia is often required in cases of eclampsia. The review highlights the importance of multidisciplinary protocols and effective communication between health teams to optimize outcomes. It is concluded that the choice of anesthetic method should be individualized, considering the severity of the patient's condition and the urgency of the procedure.

**Keywords:** Anesthesia, Cesarean delivery, Eclampsia, Preeclampsia, Maternal health.

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## INTRODUCTION

Eclampsia and preeclampsia are hypertensive conditions that occur during pregnancy and pose a significant risk to maternal and fetal health. These complications are characterized by hypertension and, in severe cases, seizures, which can lead to adverse outcomes during delivery. Anaesthesia in caesarean deliveries in these patients requires a careful approach, considering the risks associated with both conditions. The choice of the type of anesthesia can influence both the safety of the mother and the newborn.

Studies show that regional anesthesia, such as spinal anesthesia and epidural anesthesia, is often preferred over general anesthesia in cesarean sections. This is due to the lower incidence of respiratory complications and the preservation of uterine function, which are crucial for the health of the fetus. However, the presence of severe hypertension can complicate the administration of regional anesthesia, requiring careful assessment of risks and benefits.

Existing literature suggests that regional anesthesia can be safely performed in patients with mild to moderate preeclampsia, but close monitoring is required. In contrast, in cases of eclampsia, where there is a risk of seizures, general anesthesia may be considered. The choice of anesthetic method should be based on an individualized assessment, taking into account the severity of the patient's condition, the urgency of the procedure, and the experience of the anesthesia team.

In addition, understanding the physiological implications of eclampsia and preeclampsia in anesthesia is essential. These conditions may affect the pharmacokinetics and pharmacodynamics of anesthetic agents, requiring adjustments in doses and technique used. Research on anesthesia in patients with eclampsia and preeclampsia is still limited, and more studies are needed to establish clear guidelines.

Therefore, this systematic review aims to gather and analyze the available evidence on anesthesia in cesarean section in patients with eclampsia or preeclampsia, using the SciELO, PubMed and LILACS databases. Through a critical analysis of the literature, we intend to identify the best practices and recommendations for anesthetic management in these situations.

## METHODOLOGY

The methodology used in this systematic review followed the guidelines of the PICO system (Population, Intervention, Comparison and Outcome). The steps were as follows:

**Population Definition:** Pregnant patients diagnosed with eclampsia or preeclampsia who require cesarean delivery.

**Intervention:** Different anesthetic approaches (regional anesthesia vs. general anesthesia).

**Comparison:** To compare the efficacy and safety of different anesthetic techniques.



Outcome: Maternal and neonatal outcomes, including complications, recovery time, and patient satisfaction.

The search for articles was carried out in the SciELO, PubMed and LILACS databases, using the descriptors "anesthesia", "cesarean delivery", "eclampsia" and "preeclampsia". Studies published between 2010 and 2023, available in English, Portuguese, and Spanish, were included. The selection of articles was made based on the defined inclusion and exclusion criteria, resulting in a total of 20 studies relevant to the analysis.

The data were extracted and organized into tables, allowing a comparison between the results of the different studies. The analysis was carried out qualitatively and quantitatively, seeking to identify trends and patterns in anesthetic approaches.

## RESULTS AND DISCUSSION

The collected data revealed that regional anesthesia is the preferred technique in 70% of cesarean section cases in patients with mild to moderate preeclampsia, with significantly lower maternal complication rates (5%) compared to general anesthesia (15%)<sup>1,2</sup>. In cases of eclampsia, general anesthesia was used in 60% of deliveries, reflecting the need for rapid control of seizures and the urgency of the procedure<sup>3</sup>.

Studies have also indicated that regional anesthesia not only reduces respiratory complications but also improves postoperative recovery, with a median hospital discharge time of 48 hours after cesarean section, compared to 72 hours for those who received general anesthesia<sup>4</sup>. In addition, patient satisfaction was reported to be higher in those who received regional anesthesia, with 85% reporting a positive experience<sup>5</sup>.

However, the literature points out that regional anesthesia can be challenging in patients with severe hypertension, where inadequate administration can lead to complications such as hypotension. A specific study showed that 30% of patients with severe preeclampsia had episodes of hypotension after spinal anesthesia, requiring immediate interventions for stabilization<sup>6</sup>.

In comparison, general anesthesia, although faster in induction, had a cardiovascular complication rate of 10% in patients with eclampsia, which raises concerns about its safety in emergency situations<sup>7</sup>. The choice of anesthetic method should therefore be carefully considered, considering not only the patient's clinical condition but also the experience of the anesthetic team.

Finally, the analysis of the data suggests that the integration of multidisciplinary protocols, which include obstetricians and anesthesiologists, can optimize the results. Effective communication between teams is essential to ensure that decisions about the type of anesthesia are made quickly and based on the best available evidence<sup>8</sup>.



## CONCLUSION

Cesarean delivery anesthesia in patients with eclampsia or preeclampsia is an area that requires special attention due to the risks associated with these conditions. The literature review indicates that regional anesthesia is generally safe and preferred, especially in cases of mild to moderate preeclampsia. However, general anesthesia is often required in eclampsia situations, where speed in inducing and controlling seizures is crucial.

It is essential that health teams are well prepared to deal with the complications that may arise during childbirth. Continuous training and the implementation of clear protocols can contribute to the improvement of maternal and neonatal outcomes. In addition, future research should focus on larger, controlled studies that can provide additional data on the efficacy and safety of different anesthetic approaches in specific populations.

Finally, collaboration between healthcare providers is vital to ensure that patients receive the best possible care. Clear communication and joint decision-making can result in more effective and safer management during cesarean delivery in patients with eclampsia or preeclampsia.



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