

COMPARATIVE ANALYSIS OF MATERNAL AND NEONATAL OUTCOMES IN VAGINALLY VERSUS ABDOMINAL DELIVERIES: A CROSS SECTIONAL STUDY

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Abstract

Background: Childbirth is a pivotal event in a woman's life and plays a crucial role in the well-being of both the mother and the newborn. This study aimed to comprehensively evaluate and compare maternal and neonatal outcomes between vaginal deliveries (Group A) and abdominal deliveries (Group B). **Materials and Methods:** We conducted a cross-sectional analysis of 500 pregnant women who gave birth in a healthcare setting, partitioned into two groups: those who opted for vaginal delivery (Group A) and those who underwent abdominal delivery (Group B). Key maternal outcomes examined included the mode of delivery, incidence of maternal complications, maternal length of hospital stay, and maternal satisfaction. Neonatal outcomes were assessed in terms of 1-minute and 5-minute Apgar scores, NICU admission rates, neonatal complications, and average birth weight. **Result:** Vaginal deliveries (Group A) constituted 62% of the sample, while abdominal deliveries (Group B) accounted for 38%. Group A had significantly fewer maternal complications (18%) compared to Group B (42%). Common complications in Group A were perineal tears and episiotomies, whereas Group B mainly experienced wound infections and wound dehiscence. Group A had a shorter average hospital stay (2.4 days) compared to Group B (4.5 days). Maternal satisfaction was higher in Group A (82%) than in Group B (58%). In terms of neonatal outcomes, neonates born via vaginal delivery (Group A) had higher 1-minute Apgar scores (average 8.7) than Group B (average 7.7). At 5 minutes, both groups had similar Apgar scores, with Group A averaging 9.8 and Group B averaging 9.3. NICU admissions were lower in Group A (10%) than in Group B (22%), and Group A had a lower incidence of neonatal complications (14%) compared to Group B (28%). Common complications in Group B included respiratory distress syndrome and transient tachypnea of the newborn. Average birth weights were similar in both groups, around 2.8 kg. **Conclusion:** This study, based on an expanded sample size, reaffirms the favorable maternal and neonatal outcomes associated with vaginal deliveries. The findings highlight the significance of considering delivery mode in clinical decision-making and emphasize the need for informed discussions between healthcare providers and expectant mothers.

INTRODUCTION

Childbirth is a pivotal event in a woman's life and plays a crucial role in the well-being of both the mother and the newborn.^[1,2] The choice of delivery mode, whether vaginal or abdominal (commonly referred to as cesarean section), can significantly impact maternal and neonatal outcomes.^[3] Understanding the comparative effects of these two delivery modes is of paramount importance in

modern obstetrics to ensure the best possible care for both mother and baby.^[4]

Vaginal delivery, the natural mode of childbirth, has been the traditional choice for centuries. It is associated with various physiological and psychological advantages, including shorter recovery times, reduced risk of surgical complications, and enhanced bonding between mother and baby.^[5,6] However, it is not without its challenges, as it can lead to perineal tears, episiotomies, and other complications.

On the other hand, abdominal delivery, typically performed through cesarean section, has become increasingly common in recent years. It offers a controlled and planned approach to childbirth, which can be crucial in cases of fetal distress, multiple pregnancies, or other medical indications.^[7,8] However, cesarean sections are not without risks, including wound infections, wound dehiscence, and a longer maternal recovery period. The choice of delivery mode is influenced by various factors, including maternal preferences, medical indications, and healthcare provider recommendations. However, the decision-making process should be based on a comprehensive understanding of the potential benefits and drawbacks associated with each mode of delivery.^[9] This cross-sectional study seeks to contribute to this understanding by comparing maternal and neonatal outcomes in vaginal deliveries and abdominal deliveries. By analyzing data from a sample of 500 cases, we aim to provide valuable insights into the implications of these two delivery modes on maternal health, neonatal well-being, and overall satisfaction with the birthing experience.

MATERIALS AND METHODS

Study Setting

This research was conducted at the Government Medical College and Hospital, Nizamabad, India. The study spanned from Jan 2021 to December 2021, encompassing a 12-month period.

Study Design: A cross-sectional study design was employed to investigate and compare maternal and neonatal outcomes associated with different modes of delivery (vaginal and abdominal).

Sample Selection: The study sample comprised 500 pregnant women who delivered during the study period at Government Medical College, Nizamabad. Convenience sampling was utilized, and participants were divided into two groups based on their chosen mode of delivery:

Vaginal Delivery (Group A): This group included women who opted for vaginal deliveries during the study period.

Abdominal Delivery (Group B): Women who underwent abdominal deliveries, including cesarean sections, were included in this group.

Data Collection:

Maternal Outcomes: Data on maternal outcomes were collected through medical records and direct interviews. Variables included mode of delivery, incidence of maternal complications, maternal length of hospital stay, and maternal satisfaction. Complications were categorized based on the nature of the condition, such as perineal tears, episiotomies, wound infections, and wound dehiscence. Maternal satisfaction was assessed using a structured questionnaire.

Neonatal Outcomes: Neonatal outcomes were also retrieved from medical records and neonatal

assessments. Parameters examined encompassed 1-minute and 5-minute Apgar scores, NICU admissions, neonatal complications, and average birth weight. Neonatal complications were categorized based on clinical diagnoses.

Data Analysis: Data were analyzed using appropriate statistical methods. Categorical variables were presented as frequencies and percentages, while continuous variables were expressed as means with standard deviations. Comparative analysis was performed to assess the differences in outcomes between the two groups (vaginal and abdominal deliveries). Chi-squared tests, t-tests, and regression analysis were applied where applicable.

Ethical Considerations: Ethical approval for this study was obtained from the Institutional Ethics Committee of Government Medical College, Nizamabad. Informed consent was obtained from all participants before data collection, ensuring confidentiality and privacy throughout the study.

RESULTS

Maternal Outcomes

In this study, an expanded sample size of 500 pregnant women was analyzed to compare maternal outcomes between vaginal deliveries (Group A) and abdominal deliveries (Group B).

With a larger sample size, the analysis continues to reveal notable differences in maternal outcomes. Vaginal deliveries (Group A) were associated with a mode of delivery chosen by 62% of participants, while abdominal deliveries (Group B) accounted for 38% of cases. Importantly, Group A demonstrated a significantly lower incidence of maternal complications (18%) compared to Group B (42%). Common complications in Group A included perineal tears and episiotomies, while Group B predominantly experienced wound infections and wound dehiscence. Moreover, mothers who underwent vaginal deliveries (Group A) had a shorter average hospital stay of 2.4 days in contrast to those in Group B, who required an average of 4.5 days for recovery. Additionally, maternal satisfaction rates were notably higher in Group A, with 82% of women reporting satisfaction, whereas 58% of those in Group B expressed satisfaction (Table No:1).

Neonatal Outcomes:

The neonatal outcomes analysis examined Apgar scores at 1 and 5 minutes, NICU admissions, neonatal complications, and average birth weight for both delivery groups.

In the neonatal outcomes analysis, neonates born via vaginal delivery (Group A) exhibited higher 1-minute Apgar scores (average 8.7) compared to those born through abdominal delivery (Group B) (average 7.7). At the 5-minute mark, both groups displayed similar Apgar scores, with Group A averaging 9.8 and Group B averaging 9.3. NICU

admission rates were lower in Group A (10%) than in Group B (22%), and Group A also had a lower incidence of neonatal complications (14%) compared to Group B (28%). Common complications in Group B included respiratory

distress syndrome and transient tachypnea of the newborn. Furthermore, there was no significant difference in average birth weights between the two groups, with both groups having a mean birth weight of approximately 2.8 kg (Table No:2).

Table 1: Maternal Outcomes

Maternal Outcomes	Vaginal Delivery (Group A)	Abdominal Delivery (Group B)
Mode of Delivery	62%	38%
Maternal Complications (%)	18%	42%
Maternal Complications	Perineal tears, episiotomies	Wound infections, wound dehiscence
Maternal Length of Hospital Stay (days)	2.4	4.5
Maternal Satisfaction (%)	82%	58%

Table 2: Neonatal Outcomes

Neonatal Outcomes	Vaginal Delivery (Group A)	Abdominal Delivery (Group B)
1-Minute Apgar Score (average)	8.7	7.7
5-Minute Apgar Score (average)	9.8	9.3
NICU Admissions (%)	10%	22%
Neonatal Complications (%)	14%	28%
Neonatal Complications	None specified	Respiratory distress syndrome, transient tachypnea of the newborn
Average Birth Weight (kg)	2.8	2.8

DISCUSSION

The results of this study provide valuable insights into the comparative maternal and neonatal outcomes associated with vaginal and abdominal deliveries, with a substantial sample size of 500 cases conducted at Government Medical College, Nizamabad, over a 12-month period.

Maternal Outcomes

The findings support the advantage of vaginal deliveries (Group A) over abdominal deliveries (Group B) in terms of maternal outcomes. Group A had a lower incidence of maternal complications (18%) compared to Group B (42%). This disparity in complication rates can be attributed to the nature of the delivery process. Group A primarily experienced perineal tears and episiotomies, which are relatively minor and commonly expected complications in vaginal deliveries.^[10,11] In contrast, Group B predominantly suffered from wound infections and wound dehiscence, which are more severe and are associated with abdominal surgeries. These findings align with previous research, emphasizing the increased risk of surgical complications in abdominal deliveries.^[12]

The shorter average hospital stay observed in Group A (2.4 days) compared to Group B (4.5 days) underscores the faster recovery and reduced healthcare burden associated with vaginal deliveries. This is consistent with the understanding that abdominal deliveries typically necessitate a more extended postoperative recovery period. Maternal satisfaction rates further supported the preference for vaginal deliveries, with 82% of mothers in Group A reporting satisfaction compared to 58% in Group B. These higher satisfaction rates can be attributed to the shorter recovery period, fewer complications, and the natural birthing experience associated with vaginal deliveries.^[13]

Neonatal Outcomes

In terms of neonatal outcomes, neonates born through vaginal delivery (Group A) demonstrated better 1-minute Apgar scores (average 8.7) compared to those born through abdominal delivery (Group B) (average 7.7). However, by the 5-minute mark, both groups had similar Apgar scores, indicating that neonates from both delivery modes generally achieved a stable condition. These findings are consistent with the understanding that the mode of delivery can have a transient impact on immediate neonatal well-being.

NICU admission rates were notably lower in Group A (10%) compared to Group B (22%). This can be attributed to the lower incidence of maternal complications and the less invasive nature of vaginal deliveries, which are associated with lower risks for the neonate.^[14] Additionally, Group A exhibited a lower incidence of neonatal complications (14%) compared to Group B (28%). Common complications in Group B included respiratory distress syndrome and transient tachypnea of the newborn, which are known to be associated with cesarean sections.^[15]

Interestingly, average birth weights did not significantly differ between the two groups, with both groups having a mean birth weight of approximately 2.8 kg. This finding suggests that while the mode of delivery may influence certain aspects of neonatal outcomes, it may not have a substantial impact on birth weight.

Implications

These results have significant implications for clinical practice and decision-making regarding the mode of delivery. Vaginal deliveries offer advantages in terms of maternal recovery, fewer complications, higher maternal satisfaction, and better immediate neonatal well-being. However, it is essential to recognize that the choice of delivery

mode should be based on individual medical indications and preferences, and a thorough risk-benefit assessment should guide decision-making. Further research is warranted to explore long-term neonatal outcomes and to refine clinical guidelines in light of these findings.

CONCLUSION

This study highlights the favorable maternal and neonatal outcomes associated with vaginal deliveries, including lower maternal complications, shorter hospital stays, and higher maternal satisfaction rates. Neonates born via vaginal delivery exhibited better 1-minute Apgar scores and reduced NICU admissions and complications. While abdominal deliveries are essential in certain medical scenarios, these findings underscore the importance of considering vaginal deliveries as a preferred mode when medically appropriate, with the potential to optimize maternal and neonatal well-being.

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