

Fetomaternal Outcome Under Subarachnoid Block for Elective Caesarean Section

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ABSTRACT

Background: Thecaesarean section (C/Section) births are escalating continuously. Foetal and Maternal outcome parameters might fluctuate under subarachnoid block. So, this investigation was delineated referring to fetomaternal outcome as Subarachnoid block was routinely employed for operative delivery in our institution.

Objective: This study was conducted to determine fetomaternal outcome of neonatal and Maternal wellbeing in parturient undergoing elective caesarean section employing Subarachnoid block.

Methodology: A Descriptive, cross sectional study employing Non-Probability Convenient Sampling was organized in Department of Obstetrics and Gynaecology, at a Tertiary Care Hospital at Lahore-Pakistan. 240 parturients of 15 to 40 years of age were scrutinised for study. The study was of six months starting from August 2021 till January 2022.

Results: The Neonatal outcome was recorded as 1minute Apgar score of ≥ 7 was 233(97.1%) and < 7 was 7(2.9), Apgar score at 5minutes of ≥ 8 was 237(98.7) and < 8 was 3(1.3), Need for Neonatal ICU admissions was 5(2.09), Neonatal hypoglycaemia was 13(5.4). Maternal outcome was taken as Post operative nausea vomiting/PONV 8(3.3), Headache 25(10.4), Back pain 16(6.7), adult ICU admission 7(2.9), Length of Post op stay of ≤ 4 days 178(74.2) and > 4 62(25.8).

Conclusion: Apgar Score at 1 minute & 5 minutes was significantly high in parturients receiving Subarachnoid block for elective caesarean section.

Keywords: Apgar score, Elective Operative Delivery, Foetal outcome, Maternal outcome, Subarachnoid block

INTRODUCTION

C/section is the most frequently carried out surgery in females. Both Surgery and Anaesthetic technique has a remarkable repercussion on the foetal and maternal outcome. Subarachnoid block (SAB) is employed for caesarean section and it can be substituted to general anaesthesia, explicitly for surgeries below the umbilicus.¹⁻³

The local anaesthetic solution injected in subarachnoid space to produce surgical anaesthesia starting from middle section of thoracic spine up to the level of sacrum is comprehended as Subarachnoid block (SAB). C/section is considered to be a life saving surgery for the mother and infant. Subarachnoid block is more preferred for elective operative delivery. Because it is relatively cheaper than general Anaesthesia and has reduced risk of drugs complications to both the parturient and newborn.⁴⁻⁶

Whenever there is an option available for selecting anaesthetic technique in case of C/Section, subarachnoid block is always considered as safe and well tolerated procedure by the mother and newborn. This anaesthetic procedure has hardly any side effect as opposed to general anaesthesia. So, SAB/regional anaesthesia has favourable impression on neonatal and maternal wellbeing.⁷⁻¹⁰

Health status of Infants born via C/section can be examined clinically by finding Apgar score. The Apgar score was proposed by an anaesthetist Sir Virginia Apgar. It is calculated right after birth to check out the impact of obstetric anaesthesia on the infants.¹¹⁻¹²

There are five components which are examined for calculating the Apgar score. It includes foetal heart rate, foetal respiration, muscle activity, grimace, and complexion of the newly born baby. Apgar score is one of the best physical examination test used to determine the health of newborn.¹²⁻¹⁴

APGAR score is abbreviated as (Appearance, Pulse, Grimace, Activity, and respiration). The Apgar score calculated after 05 minutes of birth is helpful in prognosticating existence of newly born for a longer duration.³ The score after 1-minute has its significance for estimating the effects of anaesthetic drugs on the neonate.¹⁵⁻¹⁶

SAB is relatively easy to handle than the other anaesthetic methods and needs very low dose of drugs to achieve surgical anaesthesia. It also results in decreased neonatal exposure to

CNS depressant drugs and the mother remains awake during the whole procedure. So, Subarachnoid block is contemplated as more practical in comparison to other obstetric anaesthesia procedures such as epidural block and general anaesthesia.¹⁷⁻²⁰

This study was conducted to determine fetomaternal outcome of neonatal and Maternal wellbeing in parturient undergoing elective caesarean section employing Subarachnoid block.

MATERIALS AND METHODS

This Descriptive, Cross sectional study was conducted in the Department of Obstetrics and Gynaecology, at a Tertiary care Hospital-Lahore from August 2021 to January 2022. Non-probability (convenient sampling) was employed and 240 parturients of fifteen to forty nine years of age, having any parity and gravidity, with a gestational period of 36-38 weeks due to elective indications were recorded. The parturients with abnormal conditions like placenta previa and placenta accrete or any kind of foetal impairment were excluded from this investigation. Females having co-morbidities like gestational diabetes, pregnancy-induced hypertension, eclampsia, and cardiovascular disorders were ignored from current study.

Foetal outcome were recorded on the basis of Foetal sex, Apgar score at 1 minute and 5 minutes, Neonatal Hypoglycaemia & ICU admission. Maternal outcome were recorded in terms of Post operative nausea and vomiting (PONV), Headache, Fever, Sepsis, Length of Post-op stay in days (LOS), Back-pain, Maternal ICU admission and Perinatal death. An informed consent was taken from all patients considering inclusion/exclusion criteria and all findings were recorded on a questionnaire.

Sample size was estimated using Cochran's formula with 95% of confidence level and 5% margin of error. Prevalence was taken as 30% (P=0.03). This P-value was drawn from previous study where subarachnoid block was used for C/section and Apgar score at 1 and 5 minutes was high in Parturients. (P=0.028)¹

$$\left(\frac{Z_{1-\alpha/2}^2 \cdot Pq}{2}\right)$$

Data was analyzed by using the Software statistical package for social sciences (SPSS) 26. Qualitative data was represented by its number/frequency and percentage, whereas quantitative data was computed as mean with standard deviation. Parturients were rehydrated with 500ml lactated ringer solution (IV). Betadine

solution 10% was used to prepare the lower back for Lumbar Puncture using a 25G spinal needle at L2-3 or L3-4 Inter vertebral space. 0.5% heavy Bupivacaine (1.5-3.5ml) was injected into subarachnoid space. Immediately, after the delivery of newborn APGAR score was calculated depending upon 0-10 scores for five features such as complexion, foetal heart rate, Grimace, Activity and Respiratory effort. Score 10 was considered as perfect score and Anaesthesia was labelled as satisfactory if the Apgar score was ≥ 7 . After Approval of study from Institutional Review Board (IRB) Committee this study was performed.

RESULTS

A total of 240 operative deliveries were done under subarachnoid block for elective C/section. Mean age \pm SD of parturient was 29.34 \pm 4.71.

Table I: Fetomaternal Socio-demographic Profile

Maternal age(Mean \pm S.D) In years	29.34 \pm 4.71
Fetal Sex	Frequency (%)
Female	145(60.4)
Male	95(39.6)

Table-II Obstetric Profile

Variable	Frequency (%)
Parity	
≤ 3	146(60.9)
> 3	94(39.1)
Gravidity	
≤ 4	141(58.8)
> 4	99(41.2)
Gestational age	
36 weeks	2(0.8)
37 weeks	148(61.7)
38 weeks	90(37.5)

Obstetric profile was taken as Gestational period from 36-38 weeks, Gravidity and Parity (Table-II). Fetal outcome were evaluated on the basis of APGAR Score at 1 and 5 minutes, Neonatal Intensive care (ICU) Admission and Neonatal Hypoglycaemia (Table-III).

Table-III Fetal Outcome

Variable	Frequency(%)
APGAR at 5 minutes	
≥ 8	237(98.7)
< 8	3(1.3)
APGAR at 1 minute	
≥ 7	233(97.1)
< 7	7(2.9)
Neonatal Hypoglycaemia	13(5.4)
Neonatal ICU admission	5(2.09)

Maternal outcome were recorded as PONV, Back-pain, Headache, Fever, Length of stay in post-op (LOS), Sepsis, Maternal ICU admission and Perinatal Death.(Table-IV)

Table-IV Maternal Outcome

Variable	Frequency (%)
LOS	
≤ 4	178(74.2)
> 4	62(25.8)
Headache	25(10.4)
Back-pain	16(6.7)
Fever	10(4.2)
PONV	8(3.3)
Sepsis	8(3.3)
Maternal ICU Admission	7(2.9)
Perinatal Death	0(0.0)

DISCUSSION

Vaginal delivery still presents lower risks for maternal and perinatal death and morbidity than does surgical delivery. Despite advances

in knowledge and abilities, these risks are not only linked to the emergency nature of the procedure and the danger posed by the surgical technique, but also to the potential risks associated with type of anaesthesia. Even now, there is no ideal obstetric anaesthesia technique although the global trend is adopting regional anaesthesia.²¹⁻²²

In our setup SAB is commonly performed technique and fetomaternal outcome were evaluated after elective caesarean section. Our results were very close to an investigation held by Samar et al and who reported that mean value of APGAR Score after 1 minute was found to be 7.7 and after 5 minutes was recorded as 9.4.²³⁻²⁴

Similar results were portrayed in a research by Mohammed Amin et al and he proposed that frequency of PONV among parturients stands 3.0%, headache 9%, backache 6.1%, fever 3%, sepsis 3% and maternal ICU admissions 3%. Our results also showed the similar results.²⁴

Current study showed percentage of patients with Duration/length of post op stay (LOS) for ≤ 4 days to be 178(74.2%) and > 4 days to be 68(25.8%). Neonatal Hypoglycemia was 13(5.42%) and Neonatal ICU admission was 5(2.1%). This study was in agreement with Sadiqa Batool et al and they recorded that LOS for ≤ 4 days was 70% and > 4 days was 30%. There was no perinatal death in our study. In previous study it was observed that only 6% infants got admitted to Neonatal ICU and no perinatal death was recorded under subarachnoid block for a C/section.^{12,25}

CONCLUSION

Apgar scores at 1 minute and 5 minutes was favourable under SAB for elective C/section. So, we can continue to employ SAB for elective C/section to get good foetal and maternal outcome.

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