Original Article

The Influence of the Mode of Anesthesia on the Neonatal Well Being After the Caesarian Delivery

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Objective: To evaluate the influence of the mode of anesthesia on the neonatal out come after the caesarian delivery.

Material and Methods: All the patients who were going to have a caesarian section were enrolled to the trial & their demographic data along with the Apgar Score and need for the NICU (Neonatal intensive care unit) admission, was entered in a specially designed proforma. After the data collection (from 1st March 2010 to 28th February 2011) The data was entered in SPSS version 19 & was analyzed statistically.

Results: There were 1308 caesarian deliveries out of which 59.6% (n=779) were delivered electively while 40.4% (n=529) had an emergency delivery. The rate of general anesthesia versus spinal anesthesia was the same i.e. 59.2% (n=199) & 59.7% (n=580) respectively in elective delivery group & 40.8% (n=137) & 40.3% (n=392) respectively in emergency delivery group & this difference was found statistically in significant. The Apgar Score of the neonates delivered to patients having general anesthesia was significantly poor as compared to the spinal anesthesia group & the rate of NICU admission is also high in general anesthesia group i.e. 10% (n=34) as compared to 5.8% (n=56) this difference is also statistically very significant (P=0.018).

Conclusion: Spinal anesthesia is associated with better neonatal outcome as compared to general anesthesia in both emergency and elective C/Section group.

Key words: Neonates, caesarian section, general anesthesia, spinal anesthesia, apgar score.

Introduction

Obstetric anesthesia is one of the most important Sub-Specialties of anesthesia. Anesthetic methods used during c-section have advantages and disadvantages to both mothers and infants and may result in short and long term neonatal effects.

The spinal anesthesia is considered as more practical and safer than other techniques because it is simple to administer, need of minimal monitoring and the dose of drugs required to induce spinal anesthesia is 1.5milliliter. Therefore unlikely to produce systemic effects in the baby, so less neonatal exposure to depressant drugs, a decreased risk of maternal pulmonary aspiration to an awake mother, at the time of the birth of the baby.[1] The disadvantages of the spinal anesthesia are fixed duration of anesthesia, risks of an extensive block, hypotension (9%)[2] and the risk of post Dural puncture headache.[3,4]

The drugs used for general anesthesia are multiple and affect the baby by direct effect from placental transfer and by indirect effect resulting from maternal physiological and biomedical changes, which appear to be much more important. They may produce systemic effects in the baby leading to low Apgar score and sedation. In this technique there are risks of difficult intubations, maternal pulmonary aspiration, delayed recovery, nausea and vomiting. The incidence of maternal mortality may reach up to 10%.[2]

In 1952 Dr. Apgar, an obstetric anesthesiologist proposed the Apgar score as a means of rapid evaluation of the physical condition of infants shortly after the birth. The score are taken at one and five minutes after delivery of the baby. The five minutes score is regarded as the better predicator of survival in infancy in the long term. Whereas the 'one' minute score definitely has the value for; assessing the effects of different drugs given to the mother during the c-section, this method is more appealing because it is non invasive.[5] The effects of general and regional anesthesia on neonates have been studied mainly on elective cases. We studied infants delivered by both elective and emergency c/section at Shalamar Hospital from 1st March 2010 to 28th February 2011, to determine the influence of the mode of anesthesia on the neonatal outcomes.

Patients and Methods

It was a cross sectional study conducted in a year's time i.e. from 1st March 2010 to 28th February 2011 in the OBGYN Department of Shalamar hospital, which is a tertiary Care hospital in Lahore, Pakistan. We report on 1308 patients who were delivered by

c-section. 59.6% (n=779) of which had elective c-section while 40.4% (n=529) had an emergency c-section. Almost equal number of patients received general and spinal anesthesia in each group i.e. the rate of general versus spinal in elective delivery group was 59.2% (n=199) and 59.7% (n=580) respectively. This difference is statistically insignificant similarly the rate of general versus spinal anesthesia in patients who were delivered through emergency c-section was 40.8% (n=137) and 40.3% (n=392) respectively and their difference is also found statistically insignificant.

The demographics and the obstetrical data were entered in a specially designed proforma. The Apgar score at five minutes and need for the NICU admission and was recorded. The primary outcome was the Apgar score and need for the NICU admission. The data was collected and then entered in SPSS version 19 and was analyzed statistically' test was applied. The significance level was at 0.05.

Result

The demographic data including the age and gravidity was not significantly different in 2 Anaesthesia groups.

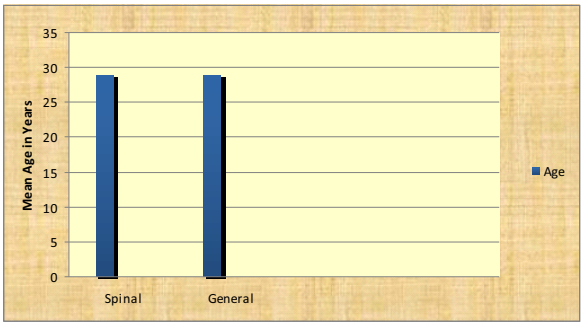

Fig-1: Distribution of cases in two groups according to the age of the patients.

The mean age is 29 years with std deviation of 4.082 in group I (spinal) and is 28.98 years with std deviation of 4.023. The difference is statistically in significant (P-value=0.005>) as shown below. The number of patients requiring NICU admission were 10.1% (n=34) in general anesthesia group, and 5.8% (n=56) in spinal anesthesia group respectively this difference is statistically very significant (P-value=0.018). This indicates the increased number of admissions of neonates born to mothers in group-II i.e. who received general anesthesia.

Discussion

The demographic data i.e. age and gravidity is not different in two groups. Both the elective and emergency c/section the ratio of spinal versus general anesthesia in almost the same number.

In this stury Apgar score of the infants born to mothers who received spinal anesthesia as compared to general anesthesia. Similar results were found by the Solangi SA and colleagues who did the study on 160 patients in people's university of Medical and Health Science for Women Shaheed Benazir Abad (Nawabshah) in 2009.[1] They recorded both the apgar Score and umbilical artery blood PH and found that spinal anesthesia is superior to general anesthesia Similarly Hobson and colleagues did a study on 137 patients in Mill Road Maternity Hospital, Mill Road Liverpool L62AH, UK in 2004 and has revealed similar result.[8] The Apgar Score of the infants were also found better in the spinal anesthesia group by Kolatalt in Siriraj Hospital, Mahidol University, Bangkok Thailand who compared it among 103 patients receiving general anesthesia and 118 with spinal anesthesia, He also included the epidural as a third group.[10] Afolabi and colleagues in college of medicine, university of Lagos, Ida Arabia, Lagos also found the superiority of the Spinal anesthesia over general anesthesia in term of neonatal out come.[11] The study which found the general anesthesia better in term of neonatal acid anemia over spinal anesthesia contrary to over result was by Radcliffe RM and colleague who did the study in John Radcliffe Hospital, Heading term Oxford, UK. Though he also found that Apgar Score was better i.e more than 7 in 93% of Patients in Spinal group as compared to 75% after general anesthesia.[7] The equivocal results of both spinal and general anesthesia were found by the Zehra Nese Kavak and colleagues in University of Marmara Istambul, Turkey in 1999-2000.[9] Lalitha krishnan and Colleagues.[6] Sigalas J and colleagues in university General Hospital, Alexandrouspolis, Greece from 1st July 2001 to 30 June 2004 and Sadiqa Batool and Abdul Salam Malik in OBGYN Department of CMH, Sialkot from January 2007 to January 2008.[13]

Table-1: Distribution of cases in two groups according to the gravidity of the patients.

Gravidity	Spinal		Male Rank		Total	
	N	Percentage	N	Percentage	N	Percentage
Primigravidas	207	21.3	65	19.3	272	20.8
Multigravida	740	76	266	79.1	1006	77
Grand Multigravida	25	2.5	05	1.5	30	2.3
Total	972	100	336	100	1308	100

We also found that there is an increased rate of NICU admission in patients who received general anesthesia.

Conclusion

In term of neonatal safety we conclude that spinal anesthesia is a better choice of anesthesia for Caesarian deliveries.though the rate of patient satisfaction.

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