

Comparison of Spinal and General Anaesthesia in Patients Undergoing Caesarean Section: A Prospective Study at a Tertiary Care Teaching Hospital

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Abstract

Background: Caesarean section (CS) is one of the most common surgical procedures today. About 20-25% of all birth is by CS. Surgery and anesthetic technique employed has been shown to effect postoperative outcomes, specifically effecting the length of hospital stay. Hence; present study was planned to assess and compare the efficacy of spinal anaesthesia and general anaesthesia in patients undergoing CS. **Materials & Methods:** The present study included evaluation and comparison of efficacy of spinal and general anaesthesia in patients undergoing caesarean section. A total of 30 subjects were included in the present study and were broadly divided into two study groups; group 1 and group 2 with 15 patients in each group. Group 1 included patients which underwent caesarean section under general anaesthesia and group 2 included patients which underwent caesarean section under spinal anaesthesia. All the patients underwent complete haematological and biochemical investigation before the starting of the surgical procedure. Complicate demographic details of all the patients were recorded. Presence of any postoperative complication were also evaluated and recorded. All the results were analyzed by SPSS software. **Results:** A total of 30 pregnant females were included in the present study and were broadly divided into two study groups with 15 females in each group. Mean age of the patients of group 1 and group 2 was 33.5 years and 34.1 years respectively. Mean gestation weeks of patients of group 1 and group 2 were 38.5 weeks and 38.4 weeks respectively. Number of hypotensive patients observed in group 1 and group 2 after procedure were found to be 2 and 8 respectively. Significant results were obtained while comparing the total intraoperative fluid requirement and number of ephedrine requiring patients in between both the study groups. **Conclusion:** In comparison to spinal anaesthesia, general anaesthesia is comparatively better for patients undergoing elective caesarean section.

Keywords: General Anaesthesia; Spinal Anaesthesia; Caesarean Section.

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Introduction

Caesarean section (CS) rates have increased dramatically in developed and developing countries alike in the past 30 years. In developed countries, regional anaesthesia, most often spinal anaesthesia (SA) rather than general anaesthesia (GA) has become the anesthetic technique of choice for women undergoing CS [1-3].

Caesarean section (CS) is one of the most common surgical procedures today. About 20-25% of all birth is by CS. Most of the CS are now performed under (SA) in modern obstetrics as it is technically easier, safe, with short recovery. It allows the patient to remain awake during the procedure, thus relieving anxiety and improving satisfaction and other benefit is the avoidance of infant sedation [4-6].

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Surgery and anesthetic technique employed has been shown to effect postoperative outcomes, specifically effecting the length of hospital stay. Rapid recovery after cesarean section should not only aim for an early return to normal daily life but also for the mother’s bonding and nursing of the newborn [7-9].

Hence, we planned the present study to assess and compare the efficacy of spinal anaesthesia and general anaesthesia in patients undergoing CS.

Materials & Methods

We planned the present study in the Department of Anaesthesia, Rajshree Medical Research Institute & Hospital, Bareilly, Uttar Pradesh (India) and included evaluation and comparison of efficacy of spinal and general anaesthesia in patients undergoing caesarean section. Written consent was obtained after explaining in detail the entire research protocol.

A total of 30 subjects were included in the present

study and were broadly divided into two study groups; group 1 and group 2 with 15 patients in each group. Group 1 included patients which underwent caesarean section under general anaesthesia and group 2 included patients which underwent caesarean section under spinal anaesthesia (Table 1 & Graph 1).

Exclusion Criteria

- Subjects with history of any form of systemic pathology,
- Subjects with positive history of any form of gynaecological surgery,
- Subjects with any known drug allergy

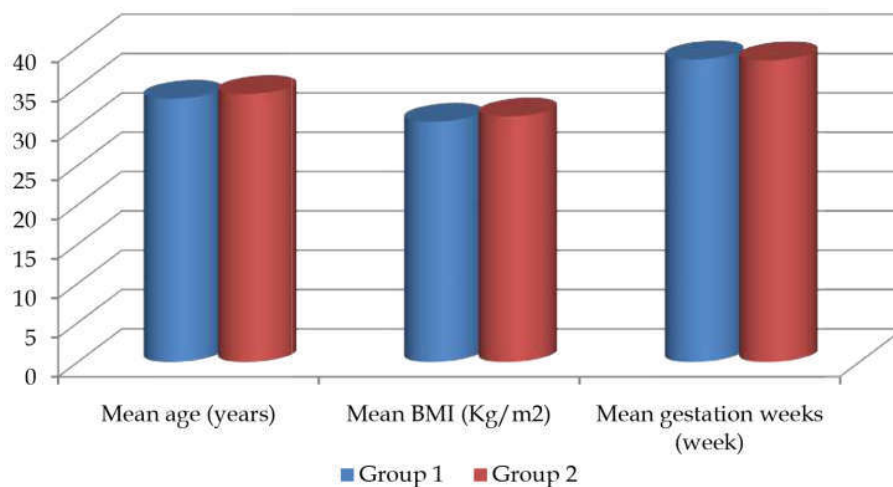
All the patients underwent complete haematological and biochemical investigation before the starting of the surgical procedure. Complicate demographic details of all the patients were recorded (Table 2). We also evaluated and recorded the presence of any postoperative complication. All the results were analyzed by SPSS software. Student t test was used for assessment of level of significance. p- value of

Table 1: Demographic details of the patients

Parameter	Group 1	Group 2	P- value
Mean age (years)	33.5	34.1	0.84
Mean BMI (Kg/m ²)	30.58	31.25	0.41
Mean gestation weeks (week)	38.5	38.4	0.25

Table 2: Complications occurring in the patients

Parameter	Group 1 (N=15)	Group 2 (N=15)	P- value
Hypotensive patients (N)	2	8	0.02*
Total intraoperative fluid requirement (ml)	1465	2102	0.03*
Ephedrine requiring patients (N)	1	7	0.04*



Graph 1: Demographic details of the patients

less than 0.05 was taken as significant.

Results

A total of 30 pregnant females were included in the present study and were broadly divided into two study groups with 15 females in each group. Mean age of the patients of group 1 and group 2 was 33.5 years and 34.1 years respectively. Mean gestation weeks of patients of group 1 and group 2 were 38.5 weeks and 38.4 weeks respectively. Number of hypotensive patients observed in group 1 and group 2 after procedure were found to be 2 and 8 respectively. Significant results were obtained while comparing the total intraoperative fluid requirement and number of ephedrine requiring patients in between both the study groups.

Discussion

In the present study, we observed that we observed significant results while comparing the number of hypotensive patients, the total intraoperative fluid requirement and number of ephedrine requiring patients in between both the study groups. Martin TC et al compared of maternal and neonatal outcomes comparing general anaesthesia (GA) and the early experience with spinal anaesthesia (SA) for CS in Antigua and Barbuda. Data obtained included maternal age, gravidity, parity, indication for operation, emergent versus routine operation and type of anaesthesia used. Outcome data comprised estimated blood loss, transfusion requirement, length of stay, postoperative wound infection for mothers. Data obtained for babies included birthweight, one and five minute Apgar scores, neonatal special care unit admission or perinatal death. The sample population included 103 CS patients who underwent GA and 45 who underwent SA. There was no difference in age (mean 29.3 vs 29.4 years), gravidity (mean 3.25 vs 3.27), parity (mean 1.74 vs 1.56) or emergency vs routine CS (44.4% vs 49.5%). Mothers who underwent GA had significantly greater estimated blood loss (mean 787 vs 632 mL, $p < 0.02$) and rate of transfusion (13.6% vs 2.2%, $p < 0.05$). There was a trend toward longer hospital stay (mean 6.86 vs 6.42 days, $p = 0.16$) but a lower rate of postoperative wound infection (8.7% vs 20%, $p < 0.10$) for mothers who underwent GA. There were no maternal deaths. Babies demonstrated no difference in birthweight (mean 3238 vs 3258 g) but those born to mothers who

underwent GA had significantly lower one minute (mean 6.84 vs 8.17, $p < 0.0001$) and five minute (mean 8.13 vs 8.91, $p < 0.001$) Apgar scores, with a trend toward more frequent neonatal special care unit admission (26.2% vs 17.7%, $p < 0.20$) and perinatal death (3.9 vs 0%, $p < 0.30$). GA and SA appear equally safe, but SA was associated with significantly better outcome for both mothers and babies [10].

Afolabi BB et al determined the effect of the type of anaesthesia used for emergency Caesarean section on neonatal and maternal outcome. The patients were recruited into the study after being given either general or spinal anaesthesia. Neonatal outcome was assessed using Apgar scores and need for respiratory assistance at birth. Maternal outcome was assessed using the difference between pre- and post-operative packed cell volumes (PCV), need for blood transfusion and estimated blood loss. The groups were matched for pre-existing risk factors. Apgar scores at 1 and 5 minutes were found to be significantly lower for the general anaesthesia group (GA) than the spinal anaesthesia group (SA) and need for respiratory assistance was greater for the GA group. Difference between pre- and post-operative PCV and need for blood transfusion were also significantly greater in the GA group. This study confirmed that the current practice of spinal anaesthesia for Caesarean section in the Lagos University Teaching Hospital is a good one, but further studies need to be done to assess other outcome variables [11]. Fyreface-Ogan S et al determined outcomes following the use of infiltrative anaesthesia (gLA) compared with general anaesthesia (gGA) in eclamptic patients undergoing caesarean section. Eclamptic patients scheduled for emergency caesarean section were prospectively studied. They were randomised into two groups to receive either infiltration with local anaesthetic or general anaesthesia for caesarean section. The protocol used for this study included clinical and sociodemographic data, chest examination prior to administration of anaesthesia, maternal and perinatal outcome, duration of maternal hospital stay and intraoperative blood pressure measurement. There were a total of 76 eclamptic patients in the study. There were no significant differences between the infiltration and general anaesthesia groups with regard to clinical and bio-socio-demographic parameters. Fourteen (40.0%) newborns in the gLA had lower Apgar scores in the first minute than 27 (73.0%) in the gGA group. Five (14.3%) newborns were stillbirths in gLA while 2 (5.4%) were found in the gGA. Twenty-one (60.0%) in gLA had Apgar scores ≥ 8 compared

to 10 (27.0%) in the gGA. The duration of hospital stay was longer in the gGA (17.1±4.1 days) than the gLA (13.0±1.6 days) with a statistically significant difference ($p < 0.0001$). There were five (12.5%) maternal deaths in the gGA and two (5.0%) in the gLA. Intraoperatively, the mean arterial pressure and mean systolic pressure at skin incision were consistently and significantly higher in the gGA group than in gLA group. Local infiltrative anaesthesia appears to have a better maternal and perinatal outcome than general anaesthesia for eclamptic patients undergoing caesarean section.¹²

Conclusion

From the above results, the authors concluded that in comparison to spinal anaesthesia, general anaesthesia is comparatively better for patients undergoing elective caesarean section. However; future studies are recommended.

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