

COMPARISON OF SPINAL VERSUS GENERAL ANAESTHESIA FOR PATIENTS UNDERGOING LOWER SEGMENT CAESAREAN SECTION

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ABSTRACT

Objective: The objective of this study was to compare post operative benefits of spinal versus general anaesthesia after caesarean section delivery.

Study Design: Randomized control trial (RCT)

Place and Duration of the study: The study was conducted at the Gynaecology and Obstetrics Department, Combined Military Hospital Sialkot for one year from January 2007 to January 2008.

Subject and Method: A total of 100 full term pregnant hospitalised patients registered for caesarean section were selected for this study by dividing them equally into study (spinal) and control (general) groups from 18 to 37 years age. Both groups were compared. Outcome variables were appearance, pulse, grimace, activity and respiration (Apgar) score of new born, post-operative hospital stay, throat irritation, post-operative Cough, chest infection, headache, backache and nausea /vomiting. The data was analyzed by SPSS-10 for significance where applicable.

Results: The study revealed that the differences of both major variables, the Apgar score among babies born and post operative hospital stay between study and control groups were insignificant ($p>0.05$). However throat irritation, postoperative cough, and chest infections were significantly less frequent ($p<0.05$) while frequencies of headache, backache and nausea/vomiting were higher after spinal anaesthesia ($p>0.05$). The post operative benefits of spinal anaesthesia cannot be advocated on a minor factor bases.

Conclusion: Comparison of postoperative complications of caesarean section after spinal or general anaesthesia revealed no significant major differences. The minor differences can be easily managed by the best hospital services and competent personnel. Each type of anaesthesia can be used safely.

Keywords: Spinal, Anaesthesia, Caesarean, Sections

INTRODUCTION

Obstetric anaesthesia is one of the most important sub-specialties of anaesthesia. Pregnant women may respond differently to non-pregnant ones in a number of important ways due to the physiological changes of pregnancy. Both general and regional anaesthesia techniques are effectively used for caesarean section. However for greater safety, regional anaesthesia is given more emphasis¹.

Recent work has indicated that regional anaesthesia for caesarean section offers distinct advantages for a newborn over general anaesthesia². The incidence of significant neonatal depression was much higher in those who were delivered after caesarean section under general anaesthesia³⁻⁵.

The uses of regional techniques for

caesarean section have been increased because postoperative complications were commonly associated with general anaesthesia. The mortality and morbidity have been found to be quite low with spinal as compared to general anaesthesia because spinal is safe and cost effective⁶.

In addition the patient is awake and conscious. She can describe/relate timely indicators of complication. Her baby is usually born with good condition and Apgar score. The spinal technique is less expensive, quick, straightforward and rapid to learn and teach. It requires less experience and provides relief from pain of surgery for several hours as compared to general anaesthesia⁷. However caesarean section can be performed under any one of the above mentioned techniques.

The choice depends upon indications for operation, degree of surgical urgency and desire of patient by herself⁸. It has been quoted by anaesthesiologists who concur that multiple

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factors such as patients themselves, nature of surgery, method of regional or general anaesthesia and quality of pre-operative care also influence surgical outcome⁹.

Regional anaesthesia provides excellent anaesthesia and analgesia for many surgical procedures but both anaesthesiologists and patients must understand the risks in addition to benefits of regional anaesthesia to make an informed choice of anaesthesia technique¹⁰⁻¹².

MATERIAL AND METHOD

Setting and Duration

The study was conducted at the Gynaecology and Obstetrics Department of Combined Military Hospital Sialkot for 1-year period from January 2007 to January 2008.

Study Population

All full term pregnant women selected for Lower Segment Caesarean Section on emergency or elective bases.

Objective of Study

The objective of this study was to:

Compare the postoperative benefits of spinal versus general anaesthesia for lower segment caesarean section.

Sampling Method

A sample of 100 patients chosen for caesarean section was selected by convenience sample method dividing into two groups consisting of 50 patients in each.

Inclusion Criteria

Patients were selected from age range 18 to 37 years, with full term live singleton pregnancy. Their informed written consent and anaesthesia fitness report was also taken for inclusion.

Exclusion Criteria

The following patients were not eligible and so excluded:

1. Did not agree for caesarean section.
2. Premature pregnancy <37 weeks of gestation.
3. Liver, kidney or heart failure associated with pregnancy.
4. Uncontrolled metabolic disorders (Diabetes Mellitus, Hypertension,

Thyrototoxicosis)

5. Multiple foetus pregnancy
6. Intra-uterine death of foetus

Study Design

The study design was randomised control trial.

Procedure

The study population was full term hospitalised pregnant women registered for caesarean section. Their demographic data was taken for age, gestational complications, previous mode of deliveries and parity. They were allocated study (spinal anaesthesia) and control (general anaesthesia) groups according to 'odd' and 'even' registration numbers respectively. They were ethically informed about the merits and demerits of the type of anaesthesia allocated. Their informed written consent was taken before anaesthesia intervention to combat attrition problem. Those who did not agree were excluded.

The matching of controls was done by comparing their age, gestational age, previous caesarean and parity. The variables included to measure post operative out come. Apgar score of new born babies, hospital stay, throat irritation, post-operative cough, chest infections, headache, backache and nausea/vomiting.

The data was collected, processed and statistically analyzed by SPSS-10 where applicable.

RESULTS

A total number of 100 patients selected for caesarean section was studied. They were divided into spinal group and general groups having 50 patients in each for spinal and general anaesthesia respectively.

Their age stratification revealed that 60 (60%) patients were from 18-22 years, 25 (25%) from 23-27 years, 10 (10%) from 28-32 years and 5 (5%) from 33-37 years.

The parity of patients was categorized. It was found that Primipara were 30 (30%), Para-2 were 15 (15%), Para-3 were 40 (40%), Para-4 were 5 (5%) and more than four parity were among 10 (10%) patients.

The frequency of gestational problems was assessed. It was noted that a history of previous caesarean section was among 51 (51%), Breech presentation 11 (11%), Transverse lie 7 (7%), P/V bleeding with chorionitis 5 (5%), Placenta Previa 6 (6%), Contracted Pelvic 8 (8%) and Foetal distress was noted among 12 (12%) patients who were studied as shown in table.1

Newborn delivered were compared by Apgar score assessment between these two groups. It was found that the difference was insignificant ($p>0.05$) as shown in table.2

The duration of post operative hospital stay of patients after caesarean section was noted. The study revealed that there was no difference statistically after spinal or general anaesthesia ($p>0.05$) as shown in table.3

Throat irritation was found to be 3 (6%) among spinal and 30 (60%) among general anaesthesia group being significantly higher in the latter ($p<0.05$) as shown in table.4

Similarly post operative cough and chest infections were 8% and 4% respectively among spinal but 50% and 10% respectively among patients who received general anaesthesia being significantly higher in the later ($p<0.05$) as depicted in table.4

However, headache and backache were 66% and 46% respectively among spinal group but these were 2% and 4% respectively among general group patients. It represented significantly lower proportions ($p<0.05$) among

general anaesthesia patients. Similarly, Nausea / vomiting was among 38% in spinal and 4% among general anaesthesia group being significantly lower who received general anaesthesia ($p<0.05$) as shown in table.4

However, headache and backache were 66% and 46% respectively among spinal group but these were 2% and 4% respectively among general group patients. It represented significantly lower proportions ($p<0.05$) among general anaesthesia patients. Similarly, Nausea / vomiting was among 38% in spinal and 4% among general anaesthesia group being

Table-1: Frequency of gestational problems among patients

No.	Condition	Frequency
1	History of previous caesarean	51 (51%)
2	Breech presentation	11 (11%)
3	Transverse Lie	7 (7%)
4	P/V Leaking >12 Hours + Chorioamnionitis	5 (5%)
5	Placenta Previa	6 (6%)
6	Contracted Pelvic	8 (8%)
7	Foetal Distress	12 (12%)
Total		100

Table-2: Comparison of apgar score among newborns

Apgar score	Spinal Anaesthesia	General Anaesthesia	Total
1 to 5	7 (14%)	15 (30%)*	22
6 to 10	43 (86%)	35 (70%)	78
Total	50	50	100

* $P>0.05$ (Chi=3.729, df=1)

Table-3: post operative hospital stay after caesarean section

Sr No.	Post operative Hospital Stay	Spinal Anaesthesia	General Anaesthesia	Total
1	<4 Days	35 (70%)	27 (54%)*	62
2	4 or >4 Days	15 (30%)	23 (46%)	26
Total		N ₁ =50	N ₂ =50	100

* $P>0.05$ (Chi=2.716, df=1)

Table-4: Comparison of Spinal Vs General Anaesthesia for Post Operative Complications

S No	Variable	Spinal Anaesthesia N ₁ =50	General Anaesthesia N ₂ =50	2 SR*
1	Throat Irritation	3 (6%)	30 (60%)	15.39
2	Post Operative Cough	4 (8%)	25 (50%)	16.08
3	Chest Infection	2 (4%)	5 (10%)	10.12
4	Headache	33 (66%)	1 (2%)	13.97
5	Backache	23 (46%)	2 (4%)	15.14
6	Nausea & Vomiting	19 (38%)	2 (4%)	14.80

* $P<0.05$ (2SR)

significantly lower who received general anaesthesia ($p < 0.05$) as shown in table.4

DISCUSSION

Caesarean section is a life saving surgical procedure. We have found that 60% of patients were from 18-22 years of age. Previous medical workers Voigt and Rochow¹³ mentioned 14.5% caesarean at this age; which is lower than that of our work outcome. This may be attributed to structural and ethnic differences of populations studied. According to parity, para-3 was 40% contributing maximum caesarean sections. It is concordant with findings mentioned in previous literature¹³ quoted above. We have found intra uterine foetal distress among 12% cases which is very similar to 12.8% as depicted in previous study by Trujillo-Hernandez et al¹⁴

Caesarean section can be performed under spinal or general anaesthesia depending upon operational urgency, choice of patient and surgeon or anaesthetist⁷. Spinal anaesthesia is advocated because it avoids airway and intubation failure complications keeping the patient awake^{8,15,16}. Our study was conducted to compare post operative outcome of these two types of anaesthesia. We have noted the Apgar score of new born babies between these two groups. This study revealed no significant difference ($p > 0.05$) between them. It is contradictory to the findings depicted in earlier study by Hossain et al¹⁷ which favour spinal anaesthesia to get a better Apgar score. However, Haq¹⁸ described no difference in 5 minutes Apgar score which is concordant and supportive to our study findings.

Similarly, post operative hospital stay was also studied and found that difference between patients operated under spinal and general anaesthesia was statistically insignificant ($p > 0.05$). It is contrary to the earlier study¹⁸ which described post operative hospital stay being longer after general anaesthesia. These opposite findings may be attributed to the nursing care, training of staff and hospital services differences widely among study populations.

In the past, research workers Spielman and Corke¹⁹ mentioned operative complications of

Headache, Backache and Nausea/vomiting to be more common after spinal anaesthesia. This description is similar and correlates with our findings also. However these minor complications can be readily managed by skilful nurses and competent anaesthesia personnel. Our study revealed no major difference between post operatively out come variables under spinal and general anaesthesia.

CONCLUSION

There was no difference of Apgar score and post operative hospital stay after spinal or general anaesthesia. The difference of headache, nausea/vomiting and backache can be managed by competent medical personnel. The differences of post operative major benefits in caesarean delivery to prefer either type of anaesthesia are insignificant.

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