Assessment of side effects of spinal anesthesia and general anesthesia in cesarean section

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Abstract:

Background: Over the past few decades, there has been a tremendous increase in the number of cesarean deliveries performed by section in most industrialized countries. The present study was conducted to compare side effects of spinal anesthesia with general anesthesia in cesarean section. **Materials & Methods:** 90 pregnant women scheduled for elective cesarean section under spinal anesthesia (SA) were divided into 2 groups. Each group had 45 patients Group I received general anesthesia and group II received spinal anesthesia. Caesarean section was performed in both the groups. Side-effects were recorded in both groups. **Results:** The age group 20-30 years had 25 patients and 27 patients and age group 30-40 years had 20 patients and 18 patients in group I and II respectively. The difference was non- significant (P> 0.05). Complication was headache in 3 and 2, hypotension in 2 and 1, fever in 5 and 3, vomiting in 4 and 2, pain in 3 and 1, post- operative infection in 2 and 0 and ICU admission in 2 and 1 in group I and II respectively. The difference was significant (P< 0.05). **Conclusion:** Spinal anesthesia had less side effects as compared to general anesthesia in patients undergoing caesarean section.

Key words: Cesarean section, spinal anesthesia, Side effects

Introduction

Over the past few decades, there has been a tremendous increase in the number of cesarean deliveries performed by section in most industrialized countries.[1] Wide differences occur between countries, regions or even hospitals within the same region with similar socioeconomic profiles and patient characteristics. This suggests that cesarean section (CS) is probably often performed for nonmedical reasons leading to an overall overuse of this surgical obstetric intervention.[2] Indeed, it has been acknowledged that elective primary and repeat CS have contributed heavily to the rise in CS. Caesarean section (CS) is now one of the most commonly performed major operations in women throughout the world.[3] While regional or general anaesthesia (GA) are both acceptable for caesarean delivery, use of GA has decreased dramatically in the past few decades due to a higher risk of anaesthesia-related maternal mortality.[1] As a consequence, spinal anaesthesia (SA) is now the technique of choice for CS.[2] Although SA is generally well tolerated, it is still associated with considerable side effects, the most common of which is maternal hypotension, potentially endangering both mother and child. Although both general and spinal anesthesia are used in elective cases of CS, the latter is much preferred, particularly when they need to keep mother awakes. Besides, mother aspiration and fetal distress would effectively reduce by spinal technique.[4] Spinal anesthesia has been preferred over epidural anesthesia for cesarean section because of its rapid onset, effectiveness, and lower requirement for local anesthetics; however, it is associated with a higher incidence of arterial hypotension. Spinal anesthesia using small amounts of local anesthetics is less likely to cause maternal systemic toxicity or total spinal anesthesia.[5] For balancing the pros and cons of the caesarean surgeries in relation to mother and her foetus, spinal anaesthesia should be preferred. Because of some selective advantages provided by SA over epidural anaesthesia, SA is preferred nowadays for performing elective caesarean sections. Evidence for maternal death in CS, especially due to excessive bleeding is rare and general anesthesia is not often considered in this regard.[6] The present study was conducted to compare side effects of spinal anesthesia with general anesthesia in cesarean section.

Materials & Methods

The present study was conducted on 90 pregnant women scheduled for elective cesarean section under spinal anesthesia (SA). All patients were informed

regarding the study and their written consent was obtained.

Data such as name, age etc. was recorded. Patients were divided into 2 groups. Each group had 45 patients Group I received general anesthesia and group II received spinal anesthesia. Caesarean section was performed in both the groups. Side-effects were recorded in both groups. Results were subjected to statistical analysis. P value less than 0.05 was considered significant.

Results

Table I Distribution of patients based on age groups

Age group (years)	Group I	Group II	P value
20-30	25	27	0.51
30-40	20	18	0.82

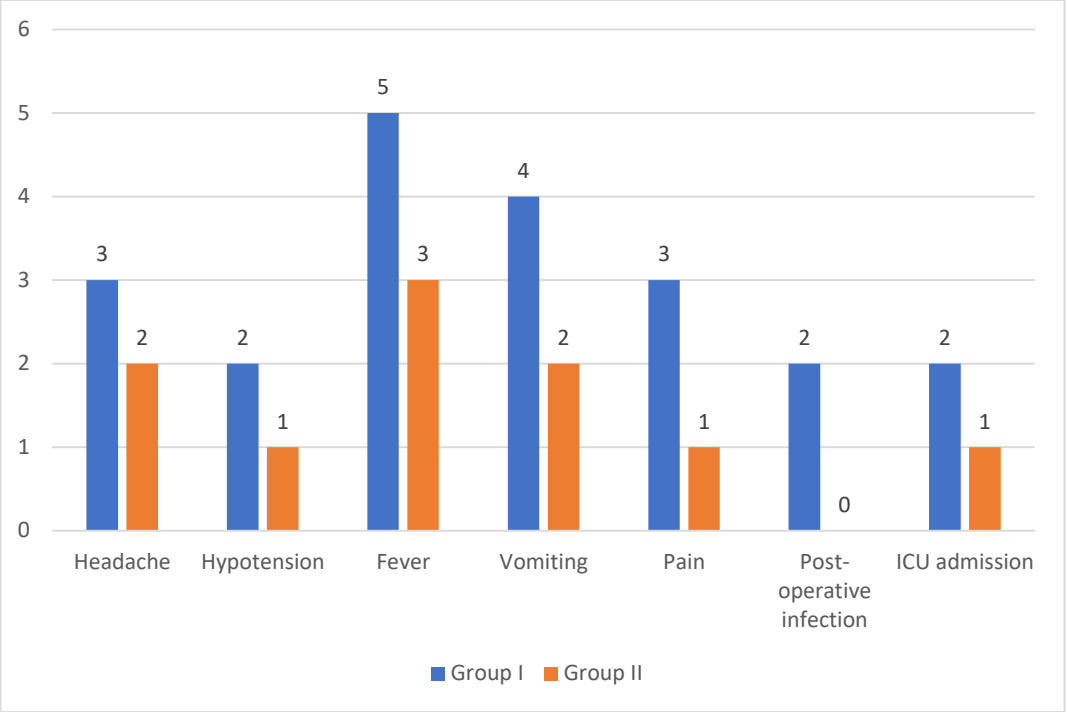
Table I shows that age group 20-30 years had 25 patients and 27 patients and age group 30-40 years had 20 patients and 18 patients in group I and II respectively. The difference was non- significant (P> 0.05).

Table II Assessment of side effects

Side effects	Group I	Group II	P value
Headache	3	2	0.01
Hypotension	2	1	
Fever	5	3	
Vomiting	4	2	
Pain	3	1	
Post- operative infection	2	0	
ICU admission	2	1	

Table II, graph I shows that complication was headache in 3 and 2, hypotension in 2 and 1, fever in 5 and 3, vomiting in 4 and 2, pain in 3 and 1, post- operative infection in 2 and 0 and ICU admission in 2 and 1 in group I and II respectively. The difference was significant (P< 0.05).

Graph I Assessment of side effects



Discussion

General anesthesia is rarely used for cesarean sections due to its potential risks to the mother and the baby. However, in certain situations, it may be necessary.[7,8] When general anesthesia is administered for a cesarean section, there are potential side effects and risks associated with it. These can include respiratory complications, nausea and vomiting, shivering and sore throat etc.[9,10]

The present study was conducted to compare side effects of spinal anesthesia with general anesthesia in cesarean section. Alnour et al[11] compared the side effects of general vs spinal anesthesia during caesarean operation. This study was conducted on 50 randomly selected participants. Of them 25 participants referred as case group A (treated with general anesthesia), and 25 participants were referred as case group B (treated with spinal anesthesia). Blood samples were collected before and after the operation to see the differences in WBCs, RBCs, Hemoglobin concentration and platelets count. Blood pressure and body temperature were also measured after operation. The mean age of the participants was 30.52 ± 4.608, majority of them have their first or second caesarean section. 23/25 (92%) of spinal anesthesia was decided with the doctor while 20/25 (80%) of general anesthesia was chosen the patient's themselves. Local pain and headache were clearly observed in spinal anesthesia while vomiting, fever, ICU admission and infection were very rare when using both types of anesthesia. Marked differences were observed in the hemoglobin concentration, RBCs count, WBCs count and platelets count when using the two techniques of anesthesia before and after operation.

We found that complication was headache in 3 and 2, hypotension in 2 and 1, fever in 5 and 3, vomiting in 4 and 2, pain in 3 and 1, post- operative infection in 2 and 0 and ICU admission in 2 and 1 in group I and II respectively. Sung et al[12] compared maternal and fetal outcomes between general and spinal anesthesia for cesarean section based on perioperative hemodynamic parameters (pre- and postoperative systolic blood pressure, heart rate), mean difference of hematocrit and estimated blood loss, and neonatal Apgar scores at 1 and 5 min. Postoperative hemodynamic parameters were significantly higher in the general group than the spinal group (systolic blood pressure: 136.8 ± 16.7 vs. 119.3 ± 12.7 mmHg, heart rate: 93.2 ± 16.8 vs. 71.0 ± 12.7 beats/min, respectively, $P < 0.001$). The mean difference between the pre- and postoperative hematocrit was also significantly greater in the general than spinal group (4.8 ± 3.4% vs. 2.3 ± 3.9%, respectively, $P < 0.001$). The estimated blood loss was significantly lower in the spinal than general group (819.9 ± 81.9 vs. 856.7 ± 117.9 ml, $P < 0.001$). There was a significantly larger proportion of newborns with 5-min Apgar scores < 7 in the general

than spinal group (6/141 [4.3%] vs. 0/146 [0%], respectively, P = 0.012).

Veneziani et al[13] found that all the elective CS with 38-40 weeks gestational age enrolled via easy sampling before being divided into two groups of general and spinal anesthesia. Patients' hemoglobin and HCT in addition to blood pressure were the major factors which were checked and compared between the groups. HB fell significantly more in patients with general anesthesia, especially at the range of 1-2 g/dl after 6 and 24 hours of CS. Around 91% of GA and more than 50% of SA had middle changes in HB and HCT. These changes were significantly different between GA and SA. The two groups were simply similar according to greater changes including 2-3 g/dl in HB or 6-9 in HCT and contain a minor part of the patients.

Conclusion

Authors found that spinal anesthesia had less side effects as compared to general anesthesia in patients undergoing caesarean section.

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