FETOMATERNAL OUTCOME OF SPINALANESTHESIA IN ELECTIVECAESEREANSECTION AT OBSTETRICS AND GYNAECOLOGY DEPARTMENT OF NASEER TEACHING HOSPITAL, PESHAWAR

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ABSTRACT

Objective: Toevaluate maternal and fetal outcome in caesarian section under spinal anesthesia

Study design:A Descriptive Observational Study

Place and duration: It was conducted in Gynae and Obstetric unit Naseer Teaching Hospital Peshawar from 1st March, 2018 to 30th August, 2019.

Material and Method: 50 female patients undergoing Elective caesarian section fulfilled the inclusion criteria, excluding contraindications of spinal anesthesia. A sociodemographic data and clinical data was collected on a proforma. All data was analyzed by using SPSS version 24. Results were interpreted in terms of frequency and percentages of various variables to draw conclusions regarding study.

Results: During this period, 50 patients were selected. Maternal post spinal morbidities were Post spinal headache in 13 patients (25.5%), Hypotension in 4 patients (9.8%), Nausea and vomiting in 5 patients (7.8%), Post spinal shivering noted in 10 patients (19.6%), Parasthesia limb in 4 patients (7.8%), Limb weakness in 2 patients (3.9%), Post-operative pain relief for 6 hours-13 patients (20.5%), 4 hours-31 patients(60.8%), 2 hours-6 patients(11.8%), Backache in 2 patients (3.9%), Maternal satisfaction in 49 patients (96%).

44 babies (88%) were of average birth weight between 2.8-4 kg while 6 babies(12%) were macrocosmic (4-4.5kg). APGAR scoring at 1minuteof birth was 8/10 in 48 neonates (96%) and 5 minute APGAR score was 10/10 in 49 neonates (98%). Post Dural puncture headache, shivering and hypotension were significant maternal morbidities while neonatal outcome was good.

Conclusion: Spinal anesthesia is safe and is associated with good maternal and neonatal outcome. Maternal satisfaction was good despite of few morbidities.

Key words: Caesarian section,spinal anesthesia, post-Dural puncture headache, shivering, hypotension, maternal satisfaction, APGAR score.

INTRODUCTION

Caesarean section is the most commonly performed procedureworldwide. 80% are performed under spinal anesthesia. It avoids risk associated with general anesthesia i.edifficult intubation, aspirationsyndrome and depressed neonate. Spinal anesthesia is associated with decreased intra operative blood loss and post operative risk of venous thromboembolism due to early recovery (mobilization and hydration). Mother is awake during the procedure and feels the child birth[1].

Spinal anesthesia in obstetrics isassociated with some minor and major complications, intra operative Hypotension, nausea vomitingPost operatively, Post Duralpuncture headache, shivering, Paresthesia, Backache and rarely nerve injures. Postdural puncture headache is the commonest complaint which affects quality of mother life and baby care post operatively.

International society of headache describe PDPH as headache that worsens within 15 minutes, of sitting or standing with at least one of the following symptoms Tinnitus, neck stiffness and photophobia.It occurs within 24 – 72 hours and resolves spontaneouslywithin one week. PDPH responds to hydration (oral or I/V) and simple analgesics and caffeine. In resistant cases, epidural patch is most effective[2].

Hypotension is associated with nausea and vomiting and fetal academia.Fluid administration pre-operatively is a routine practice to prevent hypotension. Phenylephrine infusion reduces incidence of hypotension intra operatively and improves the neonatal outcome[3].

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Spinal anesthesia is frequently used in our unitnow a days forCaesarean section. Previously General anesthesia was preferred method by patients in our unitbut Spinal anesthesia gradually gained popularity among community. Keeping in mind these points this study was conducted to assessmaternal and fetal out come in spinal anesthesia in Caesarean section.

MATERIAL AND METHOD

This Descriptive Observational study was conducted in obstetrics and Gynecologyunitin Naseer teaching Hospital, Peshawar between 1st March 2018 to 31st August 2019. 50 females who fulfilled the inclusion criteria were recruited for study, all aged between 20 to 38 years age undergoing caesarean section under spinal anesthesia after the approval of Ethical committee of the hospital.

Inclusion criteria

All were elective cases,Informed consent was obtained after explaining the risk/ benefit ratio of spinal anesthesia.

Exclusion criteriawas

-All emergency caesarean sections

-Refusal on part of the patient

-Contraindication of spinal anesthesia (Infection at puncture site, coagulopathies, cardiac patients).

All intra- operative events and detail of procedure were noted from anesthesia notes (sitting position, administration of spinal anesthesia with injectionbupivacaine, pencan pre-operative crystalloid/colloid pencil – point needle 27G).

Patientswere followed up from discharge till 6 weeks post operatively for occurrence of morbidities. Patient satisfaction about spinal anesthesia was observed about pain relief duration and her acceptability in future for spinal anesthesia in future.Fetal outcome was assessed by APGAR SCORE at birth and at one minute and 5 minute. Socio-demographic and clinical data was collected on a Performa. All data was analyzed by statistical tests by SPSS version 24.

As it was a Descriptive Observational study, the results were obtained in terms of frequency and percentages for the qualitative variable, regarding objective of the study.

RESULTS

During this period, 50% patients underwent Elective caesarean section under spinal anesthesia who fulfilled the inclusion criteria. Most of the patients were multigravida 40(80%) and primigravida were 10 (20%), age ranged between 20-38 years.

33 (66%) patients were educated and 17(34%) patients were uneducated. Post spinal maternal morbidities are shown in table I. Post-operative headache occurred in 13 patients (25.5%).

Hypotension occurred in 5 patients (99.8%) while nausea vomiting in 4 patients (7.8%). Post spinal shivering in 10 patients(19.6%), Parasthesia limb observed in 4 patients (19.6%). Limb weakness observed in 2 patients (3.9%).

Backache in 2 patients (3.9%). Post-operative pain relief for 6 hours in 13 patients (20.5%) and 4 hours in 31 patients (60.8%) and 2 hours relief in 6 patients (11.8%).

Maternal satisfaction was observed in 49 patients (98%) while 1 patient was unsatisfied (2%). All babies born were term babies, gestational age was between 37-40 weeks.44 babies (88%) were of average birth weight was between 2.8 - < 4kgwhile 6 babies(12%) were macrocosmic (4-4.5kg).

All babies were born in good condition with 1 minute APGAR score >8/10 in 48 babies (96%) and 2 (4%) had APGAR score <8/10. 5 minute APGAR score was 10/10 in 49 babies (98%) and 1 baby (2%) was <8/10.

DISCUSSION

Use of spinal anesthesia in cesarean section is gaining popularity in recent years due to simplicity of technique, and rapid onset of anesthesia. It is safe for both mother and baby but is associated with some major complications such as postdural puncture headache and Hypotension.

Postdural puncture headache is the commonest morbidity, characterized by dull pain in fronto-occipital area, usually bilateral and radiates to the neck causing neck stiffness. and photophobia.

It is accompanied by auditory and visual symptoms.[4] Main feature of this type of pain is relationship to body position, increases with upright position and relives on lying down. Typically starts within 24 to 48 hours after the procedure and may last for weeks, months and years if left untreated.

There is considerable morbidity associated with postdural puncture headache such as central venous thrombosis, subdural hematoma and even death may occur.[5]

So it is important for anesthetist to prevent or optimize the risk factors for postdural puncture headache. Preventive measures to reduce the risk of postdural puncture headache are supine position bed rest for few hours, adequate oral or intravenous hydration and caffeine. Hydration and caffeine also increase CSF production. Caffeine causes vasoconstriction of intracranial vessels.

Table 1: Maternal Outcome n=50 patents

	Frequency	Percent	Valid Percent	Cumulative Percent
Post Spinal headache	13	25.5	26.0	26.0
Hypotension	5	9.8	10	10
Nausea / vomiting	4	7.8	8	8
Limb weakness	2	3.9	4.0	4.0
Paresthesia	4	7.8	8.0	8.0
Backache	2	3.9	4.0	4.0
Shivering	10	19.6	20.0	20.0
Pain Relief Duration				
2 hours	6	11.8	12.0	12.0
4 hours	31	60.8	62.0	74.0
6 hours	13	20.5	26.0	100.0
Will the patient Opt for Spinal Anesthesia in future				
Yes	49	96.1	98.0	98.0
No	1	2.0	2.0	100.0
Neonatal outcome (APGAR score at 1 minute)				
	Frequency	Percent	Valid Percent	Cumulative Percent
10/10	48	94.1	96.0	96.0
< 10/10	2	3.9	4.0	100.0

Hydrocortisone is also effective in reducing this complication[6].Epidural patch is the last effective option. The risk factors were looked for in many publications. In an international study postdural puncture headache developed in 14% of patients with pencil point needle 27G, 32%with 26G atraumatic needle and 36% with sharp pointed 25G needle. It was concluded that important risk factor for headache was type of needle used[7]. An Egyptian study showed the incidence and severity of headache is related to type of needle used[8]. AMeta-analysis reported use of whitacre needle achieved lower incidence of headache. It was 0-40% with 25G quinke needle and 12.8% with 27G quince needle[9]. Pencil point needle, Para median approach were found effective in reducing postdural puncture headache. Pencil point needle decreases damage to Dural fibers, hole is small and it heals spontaneously[10,11]. In our study incidence of postdural puncture headache was 25.5%.The incidence of postdural puncture headache was significantly higher as compared to these studies. The risk factors for postdural puncture headache were pregnant female patients, multiple punctures and use of 27G pencan needle. It also depends on anesthetist experience.

The headache developed after 48 hours post operatively of moderate intensity and responded well to oral hydration, caffeine, acetaminophen at 6 hourly lying flat.

Second major morbidity was post spinal hypotension which poses a great risk to mother and fetus and is associated with nausea and vomiting along with risk of aspiration and unconsciousness while resultant and decreased uteroplacental flow causes fetal acidosis and adverse fetal outcome[12]. Bupivacaine is local anesthetic used for spinal blockade. It decreases arterial tone, heart rate and cardiac contractility, so the lowest possible dose of local anesthetic should be used[13].

The main aim is to prevent hypotension to improve fetomaternal outcome. Different strategies are used,crystalloid preload[14], colloid coload[15] and use of vasopressor drugs i.e phenylephrine[16] & ephedrine[17]. Colloid coloading has been shown to be more effective method. Crystalloid preload and phenylephrine is an effective method of decreasing incidence of hypotension due to its fast action, less onset of fetal acidosis and less cardiac depression. Meta-analysis showed 5HT3 antagonists are effective in reducing hypotension and resultant nausea and vomiting[18]. In another study risk of hypotension was related to different doses of bupivacaine, incidence was 7.7% with low dose as compared to high dose bupivacaine 30.8%[19].

In our study, hypotension occurred in 5 cases (9.8%) along with nausea and vomiting in 4 cases (7.8%). Nausea and vomiting occurs in 50 to 60% of patients undergoing cesarean section. Injection Odensterone 4mg with 10ml/kg colloid coload was very effective in reducing nausea and vomiting, post spinal hypotension and post-operative shivering. Results in our

study are same as compared to other research studies.

Shivering is a common complication of Central Neuro-axial blockade and due to impaired thermoregulatory control[20]. Incidence is 40-65%. In one study, the comparison of clonidine vs. tramadol for post spinal Shivering reported both drugs were effective but response rate was high with tramadol[21]. Shivering occurred in 10 cases (19.6%) during first hour post operatively. It was grade 3 shivering. All of them responded well to warming with blankets. Only one patient needed injection Tramadol + injection decadron.

Neurological complications are rare 1/1000,000, only 0.2% are significant[22]. In this study 2 patients (3.9%) had Parasthesia of leg and limb weakness. It is usually due to direct nerve injuries during procedure which resolves spontaneously or with use of non-steroidal anti-inflammatory drugs. Spontaneous recovery occurred within 48 hours. Backache occurred in 2 patients (3.9%). It is usually due to injury to muscles and ligaments[23]. Responded to analgesic + hotcompresses.

Maternal outcome or satisfaction was related to post-operative pain relief after spinal anesthesia and willingness for spinal anesthesia in future if needed. Siddiqi Retal found satisfaction rate for post-operative nausea and vomiting to be 98.7% and post-operative backache 74.09% and patient overall satisfaction rate was 81.4%, would opt for spinal anesthesia[24]. Recent study by Munir SI compared fetomaternal outcome in general anesthesia vs. spinal anesthesia in women undergoing elective caesarean section. APGAR score was 96.3% for neonates in spinal anesthesia while 87% with general anesthesia. There was statistically no difference in neonatal outcome. Maternal satisfaction in spinal anesthesia was 79.6% while in general anesthesia 42.6%. Maternal satisfaction was significantly higher in Spinal anesthesia[25]. ArshadSetalcompared maternal satisfaction with spinal anesthesia and general anesthesia and analyzed for future choice about spinal anesthesia was 100%[26]. Ahmad Ietalanalyzed knowledge and attitude of Pakistani women for anesthesia. They found education had positive impact in choices of anesthesia. 69% educated women opted for spinal anesthesia[27] while in another study 71.7% preferred spinal anesthesia and 28.3% opted for general anesthesia[28].In our study maternal satisfaction rate was related to post-operative pain relief. Pain relief duration was 6 hours in 13 cases (20.5%) while 31 cases (60.8%) were pain free for 4 hours & 6 cases (12%) needed repeat analgesia after 2 hours.

49 cases (98%) opted for future spinal anesthesia only one patient refused. The maternal satisfaction was high 98%. It correlated well with other studies in which maternal satisfaction was 96-100%.

Only one patient (2%) opted for general anesthesia in future. The factors for her dissatisfaction were anxiety, awake State, listening to noises of machines, operation theatre environment and suffering from post-dural puncture headache..

Caesarean section is frequently performed for safety of babies on demand by mothers. Neonates are at increased risk in any type of anesthesia due to the use of anesthetic drug, their toxicity changes in maternal physiology during procedure especially opiates causes sedation and respiratory depression of the fetus. All babies born were term babies 37-40 weeks of average size 3-4 kg.

Neonatal outcome was measured by APGAR score at 1 minute. APGAR scores at one minute were > 8/10 in 48 babies (96%) ,< 8/10 in 2 babies(4%). 5 minute APGAR scores was 10/10 in 49 babies (98%) except in one neonate. One neonate got cyanosed, respiratory difficulty soon after birth, needed admission in neonatal intensive care unit where he was diagnosed as a case of Tetralogy of Fallot. Neonatal outcome was very good. It was comparable to previous studies done[29]. Outcome was 96%-100% with spinal anesthesia.

CONCLUSION

Spinal anesthesia is safer for both maternal and fetal out come despite some co-morbidities. Postdural-puncture headache was the commonest maternal complication followed by shivering. However, pre-operative informed discussion and counseling by experienced anesthetist with good intra-operative care will improve patient's acceptability and satisfaction.Neonatal outcome was excellent (96%) .

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