

A RANDOMIZED CONTROLLED STUDY TO ASSESS THE EFFECT OF PREOPERATIVE EDUCATION ABOUT SPINAL ANESTHESIA ON ANXIETY AND POSTOPERATIVE PAIN IN PARTURIENT MOTHERS UNDERGOING CESAREAN SECTION

Dr. Chhavi Goel*, Dr. Rajat Garg and Dr. J. C. Dureja

Senior Resident, Department of Anesthesia and Critical Care, Kalpana Chawla Government Medical College, Karnal-132001, Haryana.

*Corresponding Author: Dr. Chhavi Goel

Senior Resident, Department of Anesthesia and Critical Care, Kalpana Chawla Government Medical College, Karnal-132001, Haryana.

Article Received on 23/06/2019

Article Revised on 14/07/2019

Article Accepted on 04/08/2019

ABSTRACT

Background: Patients planned for surgery usually have preoperative anxiety. Incomplete information about the surgery and anesthesia may cause an increase in anxiety. Cesarean section (CS) is a common surgery in our college and post operative pain after CS is a common problem. **Aim:** The present study was carried out to assess if preoperative education via communication and handout about spinal anesthesia can reduce anxiety and postoperative pain in parturient mothers undergoing CS under spinal anesthesia. **Methods and Materials:** We randomized 90 parturient mothers undergoing CS into two equal groups, study (Group A) and control group (Group B). The study group was given a handout and structured education about spinal anesthesia. The control group was given routine preoperative information. The Amsterdam preoperative anxiety and information scale (APAIS) was used to measure anxiety preoperatively and visual analogue scale (VAS) for pain at 6 h and 24 h post operatively. **Statistical Analysis:** The two groups were compared using Student's *t* test and non-parametric Wilcoxon-Mann-Whitney U test. **Result:** The median difference in preoperative anxiety scores (APAIS) in the two groups was found to be 8.00 ($p < 0.001$), which was significant statistically. The median value of postoperative pain analyzed using VAS after giving education, at 6 h was significantly reduced in Group A (6.00) as compared to Group B (9.00). The median value of VAS score at 24 h was significantly different in both groups. It was 1.0 in Group A, whereas the same was 6.50 in Group B ($p < 0.00$). The median difference in hours in the duration of analgesia between the two groups was 0.62, which was not significant statistically ($p < 0.10$). **Conclusion:** A planned preoperative education and handout with details about spinal anesthesia can have a significant impact on reducing the preoperative anxiety and postoperative pain in parturient mothers.

KEYWORDS: Cesarean section, educational handout, spinal anesthesia.

INTRODUCTION

Almost 60-80% patients scheduled for surgery have preoperative anxiety which influences the surgery, anesthesia and consequently postoperative healing.^[1,2] Depression and anxiety are common in parturient mothers coming for elective Cesarean section (CS).^[3] This anxiety can be related to procedure related to anesthesia, surgery and to fetal well being.^[4] An early mobilization helps in prevention of thromboembolic complications. Thus good analgesia helps in early mobilization and improves general well being of mother. It also helps in early and effective breast feeding and care of the newborn.^[5] Pre operative counseling can be used to reduce requirement of analgesics, increase patient satisfaction and decrease maternal complications.^[1]

The literacy rate in Haryana is low and antenatal checkups are quite irregular in poor patients of lower

socio-economic status commonly encountered in our medical college.^[6] These patients usually have inadequate information about the anesthetic management.^[7] In most institutions in India, CS is performed under spinal anesthesia.

Hence, the present study was initiated to assess the effect of planned interactive handout and education in patient's vernacular language about spinal anesthesia to allay anxiety and ascertain its role in post operative pain relief in parturient mothers undergoing elective CS.

METHODS

After the Institutional Ethics Committee approval, Consecutive parturient patients admitted for elective CS under spinal anesthesia were visited on the day prior to surgery for a period of 3 months from July 2018 to September 2018. The patients were enrolled in the study after taking written and informed consent.

Selection Criteria

Consecutive American Society of Anesthesiologists (ASA) 2 parturient mothers admitted to the institution for elective CS under spinal anesthesia.

Exclusion Criteria

Patients with complicated pregnancy and those who required any other procedure intraoperatively such as myomectomy, breast lump excision were excluded. Patients who refused to give consent were also excluded.

The patients were allocated into two groups by permuted block randomization: Group A being the interventional group and Group B being the control group. Group allocations were sealed in serially numbered opaque envelopes prepared by research coordinator who was not involved in the study. Demographic data were collected in case study performa.

The Amsterdam preoperative anxiety and information scale (APAIS) is a validated and widely used scale for measurement of anxiety,^[8] and was used in the present study. The visual analogue scale (VAS) was used to measure pain. In the study, a scale of 0-10 was used by asking the patients to quantify the pain by putting a mark on VAS scale, which they felt represented the degree of pain at that moment.

A planned preoperative counseling comprised of details about positioning and procedure if spinal anesthesia, side effects and recovery of spinal anesthesia and advantages over general anesthesia in CS. A patient handout titled-Mother's information sheet, with above said details in patient's vernacular language was also provided. Structured education and handout was given to Group A before routine pre-anesthetic checkup (PAC).

The parturient mothers in Group B received routine PAC. This included patient's assessment for fitness for surgery, NPO timings and type of anesthesia given to the patient. A patient handout was not given prior to assessment.

The APAIS was used to measure anxiety levels 5 h after giving education and PAC, by assessor blinded to the study groups. Patients in both groups received standard care, the anesthetist performing spinal anesthesia were blinded to allocation of groups. All patients were given 9 mg bupivacaine (heavy) for anesthesia. All patients had adequate anesthesia. Post-operatively, they were given paracetamol 1 gram i.v and intravenous tramadol 100 mg Q8H for analgesia. The VAS was used to measure postoperative pain by blinded assessor at 6h and 24 h postoperatively.

Statistics

The sample size was calculated using nMaster 2.0 sample size software^[9] for non-parametric tests using two group Wilcoxon-Mann-Whitney U test. The sample

size for 90% power and 5% alpha error is 45 subjects in Group A and 45 subjects in Group B. Outcome measures that satisfied normal distribution were assessed using Student's t test, and those that did not satisfy normal distribution were assessed using non parametric Wilcoxon-Mann-Whitney U test. P value <0.05 was taken as significant and <0.001 was taken to be highly significant. The demographic variables in two groups were compared using Chi-square test. The median APAIS and VAS scores from both groups were analyzed.

RESULTS

A total of 90 parturients undergoing elective CS under SA were studied after dividing them randomly into Group A and Group B. all the participants were above 18 years and below 40 years of age and all were post term.

The two groups did not differ significantly in demographic factors, obstetric history and fetal lie (Table 1). 90% women had cephalic lie and 10% were breech presentation.

The median difference in APAIS in the two groups was found to be 8.00, which was statistically significant ($p < 0.001$). The median value of postoperative pain analyzed using VAS after giving education, at 6 h was significantly reduced in Group A (6.00) as compared to Group B (9.00). The median of VAS score at 24 h was 1.0 in Group A when compared to Group B (6.50). The difference was statistically significant ($p < 0.00$). The median difference in hours in duration of analgesia between the two groups was 0.62 ($p < 0.10$) (Table 2).

Table 1: Patient characteristics and obstetric data.

	Group A (n=45)	Group B (n=45)
Age in years [mean±SD]	25.75±2.745	25.50±2.231
Height (cm)	156.58±0.72	157.88±0.69
Weight (kg)	63.92±1.29	64.10±1.030
Gestational age in weeks [mean±SD]	36.31±1.241	36.81±1.230
Educational status (n%)		
Graduate	9 (20.0%)	8 (17.7%)
School	36 (80.0%)	37 (82.2%)
Profession (n%)		
Housewife	32 (71.1%)	35 (77.7%)
Medical	6 (13.3%)	6 (13.3%)
Non-medical	7 (15.5%)	4 (8.9%)
Gravida (number)		
Primipara	15	12
Multipara	30	33
Previous cesarean section CS (No.)		
No CS	15	12
Previous CS	30	33
Mean duration of surgery (min)	44.56 (36.34-60.40)	44.52±(37.28-56.58)

Both groups were comparable in demographic factors and obstetric data

Table 2: Outcome analysis.

Results	Group A (n=45)		Group B (n=45)		Significance
	Median	Interquartile range	Median	Interquartile range	
Anxiety (APAIS) score	2.50	(0.20-5.00)	10.50	(7.25-14.00)	0.00
Duration of analgesia (h)	4.13	(3.00-5.65)	3.50	(2.50-4.60)	0.10
VAS score 6h	6.00	(4.00-6.50)	9.00	(14.20-10.00)	0.00
VAS score 24h	1.00	(0.00-1.0)	6.50	(4.00-7.00)	0.00

DISCUSSION

We designed this study to assess if a structured hand out and preoperative education about SA could decrease preoperative anxiety in patients undergoing CS under SA. The APAIS used in the study is a valid and accepted tool in different settings. It contains 6 statements and answers to these are used to determine patient's anxiety levels. The total score ranges from 0 to 24 and each statement is rated on a 5 point scale. It includes measurement of both anxiety (Questions 1,2,4 and 5) and information need (Question 3 and 6) relating to the situation.^[10]

Our study showed that APAIS measured after giving detailed information in the form of two way dialogue and handout was found to significantly reduce anxiety in Group A (2.50) as compared to Group B (10.50). The VAS pain scores at 6 h (Group A 6.00, Group B 9.00) and 24 h (Group A 1.0, Group B 6.50) postoperatively showed significant difference between the two groups. These differences demonstrate clearly the role of intervention.

Pre anesthetic visit on the day prior to surgery is sometimes the only information patients have about the anesthetic plan. Most of the mothers we came across (70%) were not graduates. Studies show that

anesthetist's visit prior to surgery has time constraints and cannot be tailored to patient's requirement.^[11,12] hence, communication and well structured handout improves patient satisfaction regarding knowledge about anesthesia and surgery.^[13, 14]

In our study we found a significant decrease in postoperative pain in the intervention group. A good preoperative education also gives an idea to the parturient mother about what to expect in the operation theatre and in the post operative period. Although our intervention is not a substitute for adequate analgesia with pharmacological agents, it can be a good supplementary tool.

Limitations

Both primigravidas and multigravidas were included in the study. However the number of patients with exposure to anesthesia was similar in both the groups. Anesthesia is just one cause of anxiety. We did not explore other causes of anxiety.

CONCLUSIONS

This randomized control study has demonstrated that planned preoperative education with handouts in vernacular language in parturient mothers undergoing

elective CS can significantly reduce pre operative anxiety and postoperative pain.

Financial support and sponsorship

None

Conflicts of interest

None.

REFERENCES

1. Ortiz J, Wang S, Elayda MA, Tolpin DA, Ortiz J, Wang S, *et al.* Preoperative patient education: Can we improve satisfaction and reduce anxiety? *Rev Bras Anesthesiol*, 2015; 65: 7-13.
2. Caumo W, Schmidt AP, Schneider CN, Bergmann J, Iwamoto CW, Adamatti LC, *et al.* Risk factors for postoperative anxiety in adults. *Anesthesia*, 2001; 56: 720-8.
3. Kuo S-Y, Chen S-R, Tzeng Y-L. Depression and anxiety trajectories among women who undergo an elective cesarean section. *PLoSOne*, 2014; 9: e86652.
4. Kalliyath AK, Korula SV, Mathew A, Abraham SP, Issac M. Effect of preoperative education about spinal anesthesia on anxiety and postoperative pain in parturients undergoing elective CS. *J Obstet Anaesth Crit Care*, 2019; 9: 14-7.
5. Kerai S, Saxena KN, Taneja B. Post caesarean analgesia: What is new? *Indian J Anaesth*, 2017; 61: 200-14.
6. Veeramachaneni R, Indurkar PS. Awareness about anesthesia in India: A survey in southern India. *Int J Res Med Sci.*, 2016; 4: 499-508.
7. Bayrampour H, Salmon C, Vinturache A, Tough S. Effect of depressive and anxiety symptoms during pregnancy on risk of obstetric interventions. *J ObstetGynaecol Res.*, 2015; 41: 1040-8.
8. Raamesh C, Nayak BS, Pai VB, Patil NT, George A, George LS, *et al.* Effect of preoperative education on postoperative outcomes among patients undergoing cardiac surgery: A systematic review and meta-analysis. *J Perianesthesia Nurs Off J Am SocPeriAnesthesia Nurses*, 2017; 32: 518-29.e2.
9. nMaster 2.0-Sample Size Software [Internet]. Available from: <http://www.nmaster.cmc-biostatistics.ac.in/>
10. Moerman N, van Dam FS, Muller MJ, Oosting H. The Amsterdam preoperative anxiety and information scale (APAIS). *Anesth Analg*, 1996; 82: 445-51.
11. Pinar G, Kurt A, Gungor T. The efficacy of preoperative instruction in reducing anxiety following gynecological surgery. A case control study. *World J SurgOncol*, 2011; 9: 38.
12. Fitzgerald BM, Elder J. Will a 1-page informational handout decrease patients' most common fears of anesthesia and surgery? *J SurgEduc*, 2008; 65: 359-63.
13. O'Donnell KF. Preoperative pain management education: A quality improvement project. *J Perianesthesia Nurs Off J Am SocPeriAnesthesia Nurses*, 2015; 30: 221-7.
14. Kim JH. Preoperative evaluation of a surgical patient; preanesthetic interview by anesthesiology residents. *Korean J Anesthesiol*, 2012; 62: 207-8.