

PATIENT SATISFACTION- A COMPARATIVE STUDY BETWEEN GENERAL ANAESTHESIA AND SUPRA CLAVICULAR BRACHIAL PLEXUS BLOCK IN FOREARM ORTHOPAEDIC SURGERY

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ABSTRACT

BACKGROUND

There are different types, factors and procedures in anaesthesia influencing patient's satisfaction. We have compared the satisfaction level between general anaesthesia (GA) and supra clavicle brachial plexus block (SCBPB) and studied few factors which influences the outcome of satisfaction.

MATERIALS AND METHODS

50 patients of age more than 21 years who were admitted for implant removal of the forearm, included in the study. Those operated under GA during previous surgery, were given SCBPB during implant removal and vice versa. Questionnaires based feedbacks were taken twice separately for different anaesthesia they experienced. Statistical analysis was done using student's t test.

RESULTS

There is increase in satisfaction level in patients who were operated under SCBPB during present surgery over patients who were operated under SCBPB during previous surgery is 8.78% (*p<0.05). The increase in satisfaction level in present SCBPB group over previous GA group is 32.3% (**p<0.001) which shows strong statistical significance. In comparison between present SCBPB over present GA there is increase in satisfaction level by 14.67% which has a statistical significance at ***p<0.01.

CONCLUSION

Satisfaction level is more in SCBPB group than GA group. The satisfaction score in shivering, post-operative pain control and early oral intake is high in SCBPB group which indicates that these three factors influence the patient's satisfaction level.

KEYWORDS

Satisfaction, General Anaesthesia, Supra Clavicular Brachial Plexus Block.

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BACKGROUND

Customer satisfaction is the primary goal of any service provider to improve the quality of service. Patients as customers in the Medicare system continue receiving many types of services in a hospital. Dissatisfaction in any service will affect the global satisfaction. In Anaesthesia and Analgesia 1996 editorial, the authors cited the need for assessment of patient satisfaction with anaesthesia services and implored anaesthesiologists to study assessment methodologies.¹

The delivery of patient-centred healthcare must be responsive to individual patients' preferences, needs and values. Giving respect to these factors we can improve the

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satisfaction level of the patients and improve the quality of anaesthesia.

Statistical analysis of satisfaction ratings in nursing care and in ambulatory care suggest that all technical and interpersonal dimensions are not always evaluated independently by patients.²⁻⁴ Previous Studies show percentage of patients' satisfaction with anaesthesia service and very few study evaluated the effect of different factors on satisfaction level.

A pilot study was conducted with 50 patients who had undergone forearm orthopaedic surgeries under GA or SCBPB and their preferences, needs and the causes of dissatisfaction were recorded. On the basis of the mean average scores, top five factors (awareness, shivering, post-operative nausea and vomiting (PONV), Pain control after surgery, early oral intake after surgery) were considered in this study to evaluate global satisfaction.

Objectives- The primary objective is to compare patients' preference and satisfaction level between GA and SCBPB in upper extremity orthopaedic surgeries. The secondary objective is to correlate the effect of the different factors on patients' satisfaction.

MATERIALS AND METHODS

This is a cross sectional observational and questionnaire based prospective study carried out from January 2015 to September 2017 at Kalinga Institute of Medical Sciences (KIMS), Bhubaneswar, Odisha. 50 Patients of age more than 21 years who had undergone open reduction and internal fixation for forearm bone fracture within last 3 years and now posted for implant removal were included in this study. Pre-anaesthetic check-up and optimisation were done before surgery. Informed written consent was obtained from the patients. Those patients, who were operated under general anaesthesia during previous surgery, were planned for SCBPB for implant removal and vice-versa. Prepared questionnaires were given to the patients during the pre-operative visit and feedback taken. 6-point scale was used to evaluate patient’s satisfaction level, keeping ‘0’ being the worst dissatisfaction and ‘5’ being the most satisfaction.

After shifting to the operation theatre those patients who were operated previously under SCBPB, were premedicated with Inj. glycopyrrolate (0.005 mg/kg), Inj. Midazolam 0.02 mg/kg and Inj. Fentanyl 2 microgram/kg. Induction of anaesthesia done with propofol (2 mg/kg), followed by oral endotracheal intubation after administration of muscle relaxant vecuronium (0.1 mg/kg). The anaesthesia was maintained with oxygen and nitrous oxide mixture at a

proportion of 33:67 with 0.2% of Isoflurane. Diclofenac sodium IV was infused at starting of skin closure. After completion of surgery and surgical dressing the anaesthesia was reversed with neostigmine and glycopyrrolate. After satisfactory reversal of anaesthesia patient were shifted to post-operative room.

Those patients, who were operated previously under general anaesthesia, were premedicated with Inj. Midazolam 0.02 mg/kg and Inj. Fentanyl 1 microgram/kg. By using nerve stimulator, a catheter was placed at supraclavicular area and SCBPB was performed with a mixture of inj. lidocaine and inj. bupivacaine. Inadequate SCBPB were converted to GA and excluded from study. After completion of surgery and surgical dressing they shifted to post-operative room.

In the post-operative room, they were treated if they had complaints like pain, nausea and vomiting, shivering treated. All the patients were shifted to their respective beds after fulfilling the institutional discharge criteria of post anaesthesia recovery unit.

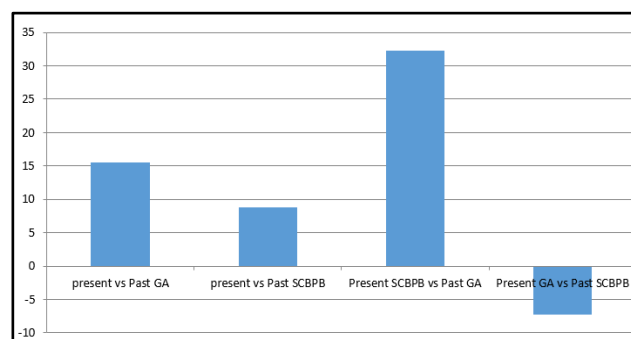
On the day of discharge from the hospital feedback was obtained with same set of questionnaires. The preference of anaesthesia of patients between these two techniques was also noted.

RESULTS AND OBSERVATIONS

	GA		SCBPB	
	Previous	Present	Previous	Present
No of patients (n)	28	22	22	28
Total score	430	390	411	569
Average score ± SD	15.36 ± 2.197	17.73 ± 2.93	18.68 ± 2.358	20.32 ± 2.582

Table 1. Overall Evaluation Score (s) Achieved in Two Methodologies

There is increase in satisfaction level of present GA group over previous GA group by 15.43%. This result is without any statistical significance. The increase in satisfaction level in SCBPB of present over previous is 8.78%. The calculated ‘t’ is 2.267 vs. tabulated t=2.042 at *p<0.05 which is statistically significant. The increase in satisfaction level of present SCBPB over previous GA is 32.3%, the calculated t = 12.8 and the tabulated t=3.7 at **p<0.001 which shows strong statistical significance. While comparing present GA over previous SCBPB the satisfaction level decrease by 7.33%, with calculated t=1.167 which is not significant. In comparison between present SCBPB over present GA there is increase in satisfaction level by 14.67% which has a statistical significance at *** p<0.01 (calculated t=3.26 vs. tabulated t= 2.4).

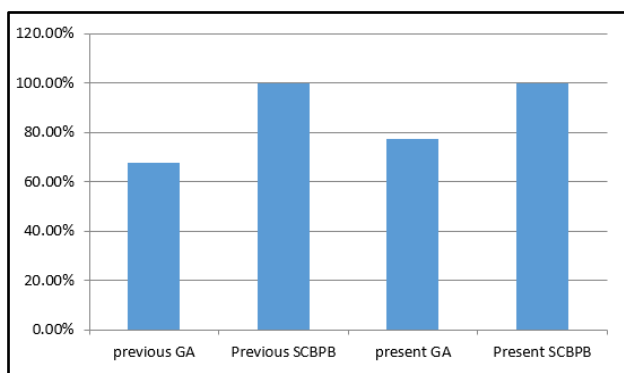


Graph 1. Increase/Decrease in Satisfaction Level

Groups	Number of Patients Satisfied (n)	Total Number of Patients (n)	Percentage
Previous GA	19	28	67.85
Present GA	17	22	77.27
Previous SCBPB	22	22	100
Present SCBPB	28	28	100

Table 2. Satisfaction Level between Groups

Out of 25 total score in 6 scale point score, 15 is the minimum score for positive satisfaction that is 60%. So patients having score of 15 or more are considered satisfied. During previous surgery 19 patients out of 28 patients from GA group were satisfied and 22 out of 22 patients from SCBPB group were satisfied with their anaesthesia. The increase in satisfaction level in SCBPB group is 32.15%. Comparing the present anaesthesia 17 patients out of 22 from GA group was satisfied while 28 out of 28 patients from SCBPB group were satisfied. There is decrease in satisfaction level of 22.73% in GA group. In both during previous and present surgeries more patients from SCBPB groups were found satisfied than the GA groups. After comparing both types of anaesthesia 36 patients out of 50 (72%) were satisfied from GA group while 50 patients out of 50 were satisfied from SCBPB group.



Graph 2. Comparison between GA & SCBPB

	Mean Score			
	Previous GA	Previous SCBPB	Present GA	Present SCBPB
Awareness	4.29	3.86	4.41	3.64
Shivering	3.68	3.90	3.82	4.14
PONV	3.07	3.73	4.05	3.96
Pain	1.96	3.50	2.09	4.46
Post Op. early oral intake	2.36	3.68	3.36	4.11

Table 3. Comparison of Mean Satisfaction Score of Parameters between GA and SCBPB

Patients under GA were more satisfied than under SCBPB group for awareness during both previous and present surgeries. During the present surgery patients from GA group were more satisfied than from SCBPB for PONV. For all other parameters patients were more satisfied from SCBPB group than in GA group.

DISCUSSION

The satisfaction level in both the groups increased in present anaesthesia compared to previous anaesthesia. The satisfaction level was increased by 15.43% among the patients receiving GA. Levinson W et al.⁵ found that effective communication between doctor and patient improves health outcome or patient's satisfaction. Lee et al.⁶ in their study found that patient education improves the satisfaction. Lack of Pre-operative communication with the patients and psychological factors due to trauma might contribute

towards decrease in satisfaction level during previous anaesthesia.

The satisfaction level increases in present SCBPB over previous SCBPB group by 8.78% (*p<0.05). In previous study it was found that pain decreases satisfaction.⁸ The present brachial block performed after premedication with fentanyl and midazolam. Usually Midazolam decreases awareness and fentanyl provides adequate analgesia. A catheter also was inserted during this procedure for post-operative pain management. These two factors a) decreased awareness and b) peri-operative pain control increased satisfaction level among present SCBPB group in comparison to previous SCBPB.

There is increase in satisfaction level in present SCBPB over previous GA by 32.3% (**p<0.001) and decrease in satisfaction level in present GA over previous SCBPB by 7.33%. Nakahashi K et al.⁷ found more patients satisfied in GA in comparison to regional anaesthesia. Endale Gebreegziabher Gebremedhn et al.⁸ in their study found out of 111 patients who were managed under general anaesthesia, 97 (87.4%) were satisfied and 14 (12.6%) dissatisfied. Whereas out of 45 regional cases, 44 (97.8%) were satisfied and 1 (2.2%) dissatisfied (GA vs. RA, P = 0.046). In both these studies they compared two groups, each patient experiencing either of one type of anaesthesia. But in our study in this comparison, each patient received and compared both type of anaesthesia and each of the patients chose the best out of the two. It reflects the comparative satisfaction level.

In a comparison between present SCBPB over present GA there is increase in satisfaction level by 14.67% which has a statistical significance at ***p<0.01. As per the American Society of Anaesthesiologists (ASA) recommendation in 2014, the feedback was taken on the day of discharge from the hospital to improve the quality of data. Mi Geum Lee.⁹ in his study found no statistical significance in satisfaction level between GA and Brachial plexus block. Nakahashi K et al.⁷ found more patients are satisfied with GA in comparison to regional anaesthesia. Post-operative pain relive in those studies were other than nerve blocks. In our study, post-operative pain was managed by brachial plexus block.

Adel Ali Alshehri et al.¹⁰ in their study found that there is a strong co-relation between pain and patient dissatisfaction. They also found similar co-relation between PONV and dissatisfaction. We found the mean score of satisfaction in awareness is more in GA during previous and present surgery. In PONV the mean score of satisfaction is higher in present GA. The mean score of satisfaction for pain control, shivering and post-op early oral intake is more in SCBPB group and more satisfaction level in SCBPB group.

Other hospital satisfaction surveys have reported that satisfaction rates in anaesthesia is >85%.^{8,10,11-14} In our study only 76% of patients who experienced GA were satisfied whereas 100% of patients satisfied with SCBPB. But it is not absolute satisfaction, rather relative satisfaction to another group.

Limitation (s) of the Study- We have included the patients in our study who were admitted for implant removal. Their first anaesthesia was not standardised and the feedback about the first anaesthesia was taken after a long period of time (maximum 3 years), where as the second feedback was on the day of discharge. The time lapse to collect the data about the previous anaesthesia might reduce the quality of data.

CONCLUSION

More patients are satisfied with SCBPB than GA. The satisfaction score in shivering, post-operative pain control and early oral intake is high in SCBPB group indicates that, these three factors influence the patient's satisfaction level. The need of anaesthetic drugs decreases in brachial block. It reduces cost to the patient, minimises the complications related to GA, improves the post-operative pain management quality, allows the patient to take orally soon after surgery, decreases the post-operative care unit stay and improves satisfaction level of the patients.

Recommendation (s) - Patient satisfaction is the balance between expectations and perceptions of what was received. So, during the pre-operative visit good communication with patient, explaining about different procedures available, as well as understanding patient's expectations will help to satisfy the patient. There are many other factors which influence satisfaction level of a patient. Extensive and continuous evaluation is necessary to find out new factors which influence the satisfaction level.

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