Original Research Article

Indian Journal of Anesthesia and Analgesia
January – February 2020; 7(1) (Part - I): 28-32
DOI: http://dx.doi.org/10.21088/ijaa.2349.8471.7120.4

Effect of Preoperative Information on Perioperative Anxiety of the Patients Posted for Elective Surgery: A Prospective Randomized Comparative Study

Debanjali Ray[1], Ishita Saha[2], Anuradha Mitra[3], Subrata Ray[4]

[1]Assistant Professor, Department of Anaesthesiology, North Bengal Medical College, Siliguri, West Bengal 734012, India. [2]Senior Resident, Department of Anaesthesiology, Burdwan Medical College, Bardhaman, West Bengal 713104 , India. [3]Assistant Professor, [4]Associate Professor, Department of Anaesthesiology, KPC Medical College, Jadavpur, Kolkata, West Bengal 700032, India.

Abstract

Context: Patients without information of surgery and anesthesia are supposed to have high anxiety level in the perioperative period which may have adverse hemodynamic effects and higher incidence of postoperative pain. Overall information regarding anesthesia may attenuate the perioperative anxiety. *Aims:* Our aim and objective was to observe and compare the perioperative anxiety level in patients undergoing elective surgery using Beck Anxiety Inventory (BAI) scale. *Materials and Methods:* One hundred patients of either sex aged between 18 and 80 years conforming to ASA physical Status I to III posted for elective surgery were randomly allocated into Two Groups to receive either baseline information during preanesthetic check up according to Institutional protocol (Group A, n = 50) or additional information based on a questionnaire regarding the process of anesthesia (Group B, n = 50). The levels of anxiety were assessed using BAI score at 4 time points namely, just after PAC (reading 0), at waiting room before entry to operation theatre (reading 1), on operation table just prior to administering anesthesia (reading 2) and again at four hours after the surgery (reading 3). *Results:* Patients of Group A has much higher anxiety level than Group B ($p < 0.05$). In both the groups anxiety level was the highest just prior to anesthesia but the degree of anxiety was less in Group B (17.28 ± 4.69) than group A (25.88 ± 6.82) p value < 0.0001. *Conclusion:* Combination of preanesthetic check up with additional information to the patient regarding anesthesia based on a questionnaire is better than only check up to reduce perioperative anxiety.

Keywords: Anesthesia; Anxiety; Knowledge; Questionaire.

How to cite this article:
Debanjali Ray, Ishita Saha, Anuradha Mitra, et al. Effect of Preoperative Information on Perioperative Anxiety of the Patients Posted for Elective Surgery: A Prospective Randomized Comparative Study. Indian J Anesth Analg. 2020;7(1 Part -I):28–32.

Introduction

Lack of knowledge regarding anesthesia in addition to surgery is seen as stressors that trigger preoperative anxiety. This may be associated with adverse hemodynamic effects, higher incidence of postoperative pain, altered immune system and contribute to development of infections.[1] The goal of Preanesthetic Check-up (PAC) is to obtain relevant information regarding the patient's current and past medical history and formulate anesthetic plan based on risk assessment.[2,3] The anesthesiologist's attention can greatly reduce anxiety even without

Corresponding Author: Anuradha Mitra, Assistant Professor, Department of Anaesthesiology, KPC Medical College, Jadavpur, Kolkata, West Bengal 700032, India.

E-mail: anumitra1962@gmail.com

Received on 15.10.2019, **Accepted on** 11.12.2019

using medicines[4] and enhance their confidence in the anesthetic procedure.[5] In recent years, it has been posited that written material, such as a simple leaflet, could be useful in increasing patients' knowledge of anesthesia and anesthesiologists.[6] There are studies concerning the effect of preoperative information tools on postoperative status of the patient.[7,8] Effect of reading information brochure prior to operation have also been studied.[9] But study regarding the effect of preoperative information in conversation format on perioperative anxiety of the patient using proper scale has not yet been done. Hence, aim of our study was to observe perioperative anxiety with and without additional information regarding anesthesia based on questionnaire and compare the level of perioperative anxiety using Beck Anxiety Inventory (BAI) scale between the groups.

Materials and Methods

This study was undertaken in a teaching hospital in West Bengal in the period from January 2017 to May 2017. After approval from Institute's Ethics Committee and obtaining informed consent 130 patients were recruited for this randomized comparative study. Inclusion criteria were patients of either sex, aged 18 to 70 years, American Society of Anesthesiologists (ASA) physical status I to III, posted for elective surgery. Exclusion criteria were patients having pregnancy, mental retardation, carcinoma, speech problem and psychiatric disorder. Based on a previous study, the mean difference and the pooled standard deviation were calculated and the sample size was determined (65 in Each Group), with power of study being 80% and confidence interval being 95%.[4] Patients were randomly allocated into Two Groups by Stat Trek random number table, where one patient had every chance to get allocated in any group. Patients were randomly allocated into Two Groups either to receive formal information as per institute's protocol during PAC (Group A, *n* - 65) or to receive additional information based on interview using the questionnaire (Group B, *n* - 65). A team of one nursing personnel and two anesthesiologists were formed to run the study smoothly and without any bias. The nursing personnel in the PAC clinic performed the group allocation using the computer-generated random numbers placed in sequentially numbered sealed opaque envelopes. One anesthesiologist performed the PAC as per institute's protocol providing baseline information in Group A or reinforcing with additional information based upon the questionnaire in Group B. The questionnaire comprised of 10 multiple choice questions such as working fields of anesthesiologists, different anesthesia techniques and the patient's own fears related to anesthesia, etc. This questionnaire was prepared according to the study of Demir et al.[10] The patient's response against each question was recorded and any doubt about anesthesia and role of anesthesiologists were clarified. After completion of the PAC, the patients' levels of anxiety according to Beck Anxiety Inventory (BAI) scale[11] were evaluated by another anesthesiologist who was blinded to the study protocol. The BAI scale consists of 21 items, each describing a common symptom of anxiety like numbness or tingling, feeling hot, wobbliness in legs, unable to relax, fear of the worst happening, dizzy, heart pounding, unsteady, terrified, nervous, feeling of choking, hands trembling, shaky, fear of losing control, difficulty breathing, fear of dying, scared, indigestion, faint, face flushed, sweating. The respondent is asked to rate how much he or she has been bothered by each symptom on a 4-point scale ranging from 0 (Not at all) to 3 (Severely - I could barely stand it). The items are summed to obtain a total score that can range from 0 to 63. Where score 0–21= low anxiety, score 22–35 = moderate anxiety and score 36 and above = potentially concerning level of anxiety.[11] Observation at this time point was coded as reading 0. The patient's anxiety levels were further assessed at other time points namely, in preoperative waiting room (reading 1), just prior to administration of anesthesia on operating table (reading 2) and again four hours after operation in either recovery room or in ward (reading 3).

Questionnaire

1. Have you ever experienced anesthesia? *Y/N*
2. Why is the patient examined by an anesthesiologist?

   To give information about their illness/to give information about their allergies/to give information about their medicines/for pain relief/to receive information about operation and anesthetic procedure/all of them/I don't know.
3. Where does an anesthesiologist work?

   Clinic/operating room/intensive care unit/pain therapy centre/kidney stone breaking centre/ Extracorporeal shock wave lithotripsy/Endoscopy unit/ catheter angiography unit/ Radiology unit/I don't know.
4. Which anesthesia techniques do you know?

   General anesthesia/local anesthesia/Regional anesthesia/I don't know

5. What are the responsibilities of an anesthesiologist during an operation?

   Pain relief/Patient's consciousness and awareness under general anesthesia/Patient's blood pressure/ Patient's heart rate/Patient's oxygen level in blood/Replacement of fluid and blood loss/all of them/I don't know.

6. According to your information who applies anesthesia?

   Surgeon/Nurse/Anesthesiologist/Anesthesia Technician/I do not know.

7. What are your fears about general anesthesia?

   Feeling pain during operation/Nausea and vomiting/Unable to wake up after anesthesia/ Remaining unconscious/Sore throat/unable to sleep completely during operation/saying undesirable words unconsciously/Dying/I don't have any.

8. Do you know anything about regional anesthesia? *Yes/No*

9. According to your information who performs regional anesthesia?

   Anesthesiologist/Surgeon/Anesthesia technician/ Nurse/I don't know.

10. What are your fears about Regional anesthesia?

    Feeling pain during operation/Becoming paralyzed/Being aware of operation/I don't have any.

The anesthesiologist blinded to the study protocol, was involved with collection, compilation and analysis of data.

Statistical analysis

Data were plotted on Microsoft excel sheet. Numerical variables were compared between groups by Student's independent samples '*t*' test. Categorical variables were compared between groups by Fisher's exact probability test. Repeated measures ANOVA were employed for intra-group comparison of numerical variables. All analyses were 2-tailed. $p < 0.05$ was considered statistically significant.

Results

One thirty patients were recruited for the study of which 30 could not complete the trial. Those were excluded from our study and calculation was done with fifty patients (Group A, *n* - 50 and Group B, *n* -50) in Each Group. No significant differences were observed in demographic parameters between the Two Groups showing in (Table 1). But regarding the anxiety scale, patients of Group A were much more anxious than Group B in all the four readings. Even there was difference in baseline anxiety level (Group A 5.32 ± 3.97, Group B 3.74 ± 2.80, *p* – value = 0.0237), (Table 3). The difference of anxiety in rest of the readings are shown in Tables 3, 4 and 5 respectively.

The Intra Group and Inter Group variability of anxiety of both the groups showed that the highest level of anxiety occurred just prior to administration of anesthesia. But it is less in Group B (17.28 ± 4.69) compared to Group A (25.88 ± 6.82), *p* - value < 0.0001.). Anxiety level reduced in postoperative period and the degree of reduction of anxiety is more in Group B (11.08 ± 4.61) than in Group A (14.52 ± 5.69), *p* - value being 0.0013.

Table 1: Comparison of demographic characteristics and anesthesia techniques

	Group A (*n* - 50)	Group B (*n* - 50)	*p* - Value
Age (years)	38.84 ± 11.590	38.94 ± 10.958	0.697
M:F	24:26	27:23	0.550
GA: Regional	20:30	23:27	0.546
ASA Status	1.46 ± 0.645	1.52 ± 0.677	0.765

Table 2: Comparison of baseline anxiety between the groups (Reading 0)

Anxiety Score	Group A	Group B
Minimum score	0	0
Maximum score	16	10
Mean ± SD	5.32 ± 3.971	3.74 ± 2.805
	p - Value = 0.0237	

Table 3: Comparison of anxiety between groups (Reading 1)

Anxiety Score	Group A	Group B
Minimum score	4	1
Maximum score	34	22
Mean ± SD	18.1 ± 7.251	11.56 ± 4.903
	p - value < 0.0001	

Table 4: Comparison of anxiety between groups (Reading 2)

Anxiety Score	Group A	Group B
Minimum score	11	6
Maximum score	38	25
Mean ± SD	25.88 ± 6.820	17.28 ± 4.699
	p - value < 0.0001	

Table 5: Comparison of anxiety between groups (Reading 3)

Anxiety Score	Group A	Group B
Minimum score	3	2
Maximum score	24	23
Mean ± SD	14.52 ± 5.690	11.08 ± 4.610
	p - value = 0.0013	

Discussion

This study reveals that patients not receiving additional information about anesthesia through questionnaire were more anxious than those receiving additional information. Among the four readings such as in the PAC clinic, in the preoperative waiting room, just prior to administration of anesthesia in the operating room and four hours after surgery in either recovery room or in ward, the highest level of anxiety was found just prior to administration of anesthesia, i.e. in the operating room. Only check up and fitness declaration is not enough to allay anxiety in patients preparing for surgery. It is the anesthesiologist's responsibility to give detailed information and to be certain that the patient understands explanations about procedures and associated risks.[12]

Klopfenstein CE. et al. studied Two Groups of 20 patients who had anesthetic evaluation before hospitalization and after hospitalization, evening before the procedure and found that anesthetic evaluation as out patient basis prior to admission reduces preoperative anxiety compared to consultation on evening before procedure.[13] Kiyohara LY et al. studied the effect of surgery information on preoperative anxiety and concluded that knowledge of surgery reduces their state-anxiety level, regardless of knowlwdge of diagnosis.[4] Guo P et al. studied 153 patients and reported that an information leaflet and verbal advice reduced preoperative anxiety and depression among Chinese cardiac surgery patients significantly.[14]

In the study of Van Zuuren FJ et al. a single information brochure was reported to have reduced preprocedure anxiety on patients undergoing gastrointestinal endoscopy.[15] The above mentioned four studies more or less corroborated to the outcome of our study.

On the contrary Gillies MA et al. studied the attitude of patients to an information leaflet provided prior to admission and reported 35% of patients found it worried them. They warned against providing inappropriate form of information.[6] The merit of our study was higher patient satisfaction level in those who were given with prior information regarding anesthesia. Limitations of the study is, there are few demographic variables like literacy level, gender and occupation which should have been taken into account, were not included.

Conclusion

Patients' poor knowledge of anesthesia and surgery is an important health problem and a simple information leaflet along with preoperative check up can improve patients' knowledge and reduce anxiety levels significantly in the perioperative period.

Key Messages

Additional information regarding anesthetic procedure based on questionnaire during preanesthetic check up reduces perioperative anxiety in patients undergoing elective surgey.

References

1. Punjabi G, Khokari U, Prajapati G. Effect of Preanesthetic Assessment in outpatient consultation clinic in decreasing anxiety of patient undergoing elective surgery. IOSR-JDMS 2014;13(7):74–77.
2. Lew E, Pavlin DJ, Outpatient preanesthesia evaluation clinics, Singapore Med J 2004;45(11): 509–516.
3. Roizen MF. Preoperative evaluation. In: Miller RD, editor. Miller's Anesthesia, 5th edition. New York: Churchill-Livingstone; 2000. pp.824–83.
4. Kiyohara LY, Kayano LK, Oliveira LM, et al. Surgery information reduces anxiety in the preoperative period. Rev Hosp Clin Fac Med Sao Paulo 2004 Apr;59(2):51–56.
5. Moerman N, van Dam FS, Muller MJ, et al. The Amsterdam Preoperative Anxiety and Information Scale (APAIS). 1996 Mar;82(3):445–51.
6. Gillies MA, Baldwin FJ. Do patient information booklets increase perioperative anxiety? Eur J Anesthesiol 2001 Sep;18(9):620–22.
7. Sagun A, Birbicer H, Yapici G. Patients', who applied to the anesthesia clinic, perceptions and knowledge about anesthesia in Turkiye. Saudi J Anesth 2013;7:170–74.
8. Gercek E, Dal NA, Dag H, et al. The information requirements and self-perceptions of Turkish women undergoing hysterectomy. Pak J Med Sci 2016 Jan-Feb;32(1):165–70.
9. Uysal Aİ, Altıparmak B, Güner Ö. The effect of an informative leaflet on preoperative anxiety and patient's knowledge of anesthesia and anxiety. J Clin Anal Med 2017 April;1–5. DOI: 10.4328/JCAM.4875.
10. Demir A TS, Balaban F, Karadeniz Ü, et al. Anestezi uygulamaları ile ilgili olarak preanestezik değerlendirme sırasında hastalarda yapılan anket çalışması. Turk J Anesthesiol Reanim 2009;37(4):225–33.
11. Beck AT, Epstein N, Brown G, et al. An inventory for measuring clinical anxiety: Psychometric properties. Journal of Consulting and Clinical Psychology 1988 Dec;56(6):893–97.
12. Edward GM, vd Naald N, Oort FJ, et al. Information gain in patients using a multimedia website with tailored information on anesthesia. Br J Anaesth. 2011 Mar;106(3):319–24.
13. Klopfenstein CE, Forster A, Van Gessel E. Anesthetic assessment in an outpatient consultation clinic reduces preoperative anxiety. Can J Anesth 2000;47(6):511–15.
14. Guo P, East L, Arthur A. A preoperative education intervention to reduce anxiety and improve recovery among Chinese cardiac patients: A randomized controlled trial. Int J Nurs Stud. 2012 Feb;49(2):129–37.
15. Van Zuuren FJ, Grypdonck M, Crevits E, et al. The effect of an information brochure on patients undergoing gastrointestinal endoscopy: A randomized controlled study. Patient Educ Couns. 2006 Dec;64(1-3):173–82.