



## Anaesthesiology

## PREOPERATIVE EXPLANATION OF THE PROCEDURE BEFORE CARDIAC SURGERY IMPROVES PATIENT COMFORT IN ICU

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**ABSTRACT** Preoperative counselling can be done by the surgeon, the anesthesiologist or the nursing staff before elective cardiac surgery. This is an important part of patient preparation and it helps immensely for good patient care. In our study we made check lists to explain to the patient before surgery and rechecked if they understood what we explained and used a scoring system. We included 83 patients undergoing valve surgeries and coronary artery bypass grafts both on pump and offpump. A scoring system was devised to assess the patients immediately after they were fully awake in cardiac intensive care unit. We concluded that patients more than 50 years of age had difficulty to cope with endotracheal tube, bladder catheterization and pain relief in the postoperative period.

**KEYWORDS :** postoperative assessment score in ICU, cardiac surgery

## INTRODUCTION

Patient awakening after cardiac surgery can be difficult to handle if patient is anxious. Other causes include inadequate pain relief, bladder catheterization, presence of endotracheal tube and peripheral intravenous line. Questionnaires used preoperatively and postoperatively can be used to compare how the patients coped with the cardiac surgical procedure. O'Brien et al used occupational therapy for pre-admission multidisciplinary written information and post-operative verbal education (1). Erturk et al used the State-Trait Anxiety Inventory (STAI), and the visual analog scale (VAS) to find how preoperative education affected the pain and anxiety in cardiac surgery patients(2). The postoperative awakening of patients in Intensive care unit may also depend on intraoperative events, the haemodynamic status, fluid management and blood loss. This study used a check list pre and postoperatively to find if preoperative explanation of the surgical and anaesthetic procedure helps the patient to have smooth awakening immediate postoperative period in Intensive care unit.

## MATERIAL AND METHODS

This is a retrospective study conducted in the cardiothoracic surgery unit in a tertiary care centre. Required permissions and ethical clearance were taken. Informed written consent was taken from all patients included in the study over a period of 4 months. A checklist (Table 1) was used to explain the surgical and anaesthetic procedure preoperatively by the Cardiac Anaesthesiologist for all patient undergoing cardiac surgery. In the immediate postoperative period, after the patient is fully awake, another check list (Table 2) and Scoring system (Table 3) covering the same points was used to assess if patient understood the procedure and is comfortable in the Cardiac Intensive care unit and score for overall understanding was given. Patients < 18 years, patients with psychiatric disorders and emergency surgeries were excluded. Based on the overall understanding the scores, the categories were scores 7 to 14(1), 15 to 23(2), 24 to 29(3) and 30 to 35 (4).

Table 1: Preoperative Instructions

Sl no.	Instructions given preoperatively	Checklist-yes/no tick one
1	Explained about endotracheal tube	Yes/ No
2	Explained about NPO Status	Yes/ No
3	Explained about Intravenous fluids	Yes/ No
4	Explained about urinary catheter	Yes/ No
5	Explained about nasogastric tube	Yes/ No
6	Explained about analgesia	Yes/ No
7	Explained about peripheral venous catheter	Yes/ No

Table 2: Postoperative Evaluation

Sl no.	Points understood postoperatively	1	2	3	4	5
1	Understood about endotracheal tube					
2	Understood about NPO status					
3	Understood about Intravenous fluids					
4	Understood about urinary catheter					
5	Understood about nasogastric tube					
6	Understood about analgesia					
7	Understood about peripheral venous catheter					

Table 3: Scoring system for postoperative assessment

5	Very comfortable
4	Comfortable
3	Irritable
2	Agitated but consolable
1	Agitated and needs sedation

Table 4: Overall postoperative score

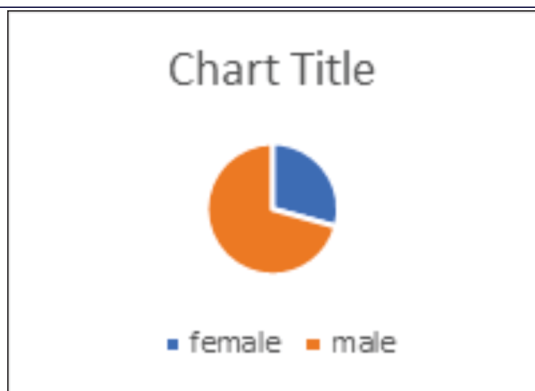
Score	Overall rank
7-14	1
15-22	2
23-29	3
30-35	4

Table 5: Age group

Age	Age group
18-29	1
30-49	2
50-70	3
>70	4

## RESULTS

The total number of patients in our study were 83. 24 were female and 58 were male patients. The mean age of the patients was 54.78(n=83,SD: 8.51). The patients were divided into 4 groups based on their age. Age group (in years) 18 to 29(group 1), 30 to 49 (group 2), 50 to 69 (group 3) and 70 and above(group 4). All the patients were explained the instructions immediately before surgery using the checklist and the investigator was satisfied that the patient has completely understood the instructions. In the postoperative period, once the patient was fully awake, patient was assessed using the check list in table 2.

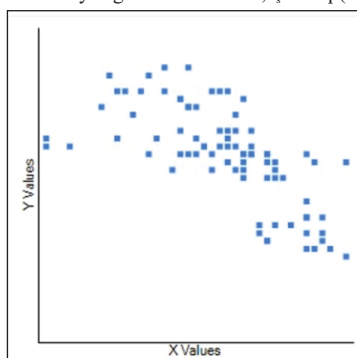


**Fig 1:**

The Mann-Whitney U Test (two tailed) for the age groups (30-49 and 50-69 years) and the overall score for understanding in patients postoperatively showed a statistical significance. ( $p=.00012, p<.05$ ) (z-score is  $-3.86098$ ). The other groups 18-29 and  $>70$  had fewer numbers ( $n=1,2$  respectively).

As the sample size in age group 18-29 and  $>70$  were less ( $n=1,2$  respectively), one way ANOVA test could not be done. The sample were merged with group 3 and 4 respectively and unpaired t-test was done for age group 18-49 and  $>50$ . The mean score in group 18-49 was 28.85 ( $n=20$ ) and in age group  $>50$  was 22.27 ( $n=63$ ). This difference was statistically different. The t-value was 4.67,  $p<0.00001$ .

The continuous variable age was analyzed against the postoperative score of patient which was a continuous variable from 7 to 35. The Pearson r value was assessed. The Pearson correlation coefficient is used to measure the strength of a linear association between two variables, where the value  $r=1$  means a perfect positive correlation and the value  $r=-1$  means a perfect negative correlation. The age and the postoperative score were found to be strongly negatively correlated,  $r(83)=-.68, p<0.00001$ . (fig 2) The four age groups were correlated with the rating of the overall score using Spearman's Rho Calculator. This resulted in a moderately negative correlation,  $r_s=.48, p(\text{two tailed})=0$ .



**Fig 2.**

The postoperative score were analyzed between males and female using unpaired t-test. The mean score in male were 24.24 and female were 22.92. The difference was not significant at  $p=0.05, t=0.89, p=0.189$ .

On analyzing the patient's postoperative score against type of cardiac surgery using Spearman Rho Calculator, no correlation was found,  $r_s=.14, p(\text{two tailed})=0.21$ .

t-test for independent means were used to assess if there is any significant difference in postoperative score when on pump or off pump surgeries were used. The t-value was 0.07, p value was 0.47 ( $n_1=42, m_1=23.9, n_2=41, m_2=23.8$ ) which was not statistically significant.

## DISCUSSION

In our study we found that patients more than 50 years of age had lower postoperative assessment scores i.e. they were negatively correlated and hence had difficulty in coping in the immediate postoperative period. In this study, there was no association between postoperative

assessment scores and type of surgery, use of cardiopulmonary bypass and gender of the patient. Hence we concluded that repeated education during the preoperative period is required for helping the patient remember the instructions given before cardiac surgery.

We should not treat patients as mere patients but as human beings. The overall care is very important. In this study we made attempt to find out how small steps taken preoperatively can make a difference in making the patient comfortable postoperatively. Gilder et al(3) used semi-structured interviews on postoperative day four and six to find that most of the patients did not even remember their experience with the endotracheal tube and some described breathing through the tube and extubation as 'weird' and 'strange' but not painful. They concluded that knowledge of the patient experience can help to improve pre and post-operative care planning. Problems faced by patients undergoing even percutaneous coronary interventions are psychological distress responses like anxiety and depression, which can cause acute post-operative hypertension and pain(4). Patient education and counseling prior to surgery can be done in person, through printed material, or through novel online or application-based approaches. These include explanations of procedures and goals which help decrease perioperative fear, fatigue, discomfort and also enhance recovery and early discharge(5). Open heart surgeries surely cause more anxiety and the treating surgeon and anaesthesiologist should take the patient into confidence before the procedure. This can be done by communicating well with the patient at multiple levels before the procedure. Limitation of our study was that our scoring is not standardized. Our sample size was also small.

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