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RESEARCH ARTICLE

EFFECTIVENESS OF STRUCTURED TEACHING ON ANXIETY AND PROCEDURE COMPLIANCE IN PATIENTS UNDERGOING CORONARY ANGIOGRAPHY

[1,*]Maj Rajeena Enoch and [2]Lt Col Elizabeth M. Varghese

[1]Clinical Instructor, College of Nursing, INHS, ASVINI, Mumbai, India
[2]Professor (Med-Surg Nursing), College of Nursing, AFMC, Pune, India

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ABSTRACT

Background: Patients with anxiety prior to coronary angiography and percutaneous coronary intervention (PCI), have increased levels of anxiety which can have negative physical, physiological and psychological consequences.
Aim: The aim of this study was to assess the effectiveness of structured teaching on anxiety and procedure compliance in patients undergoing coronary angiography in a selected cardiac hospital.
Methods: Pre procedure anxiety score was assessed using the Spielberger State Anxiety Inventory (SAI).For the experimental group (n=48), structured teaching was administered by the principal researcher for the control group (n=48) no structured teaching was given, the usual hospital routine of informing the patients verbally by the staff was followed. The compliance of the patients to the procedure was assessed using a self constructed tool comprising five essential steps to be followed by the patients during the procedure.
Results: The mean scores of anxiety before intervention in the experimental and control group was 64.19 and 61.96 respectively. The mean anxiety level in the control group had increased from 61.96 to 63.04 post conventional teaching, however there was a considerable reduction in the mean anxiety level of patients in the experimental group from 64.19 to 32.27, who received the structured teaching ($p<0.0001$). The mean procedure compliance scores in the experimental group who received the structured teaching before coronary angiography was 4.77± 0.47 and in the control group who received the conventional method of teaching was 2.65± 0.60. ($p <0.0001$).
Conclusions: Many patients have moderate to severe anxiety before coronary angiography and PCI; which is the most common and gold mark diagnostic test used today for coronary artery diseases. Therefore, routine assessment and management of anxiety are justified. The findings of this study strongly emphasize the importance of providing structured teaching to patients undergoing coronary angiography.

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INTRODUCTION

Minimally invasive procedures are increasingly replacing open surgeries in today's world. Coronary Angiography is a commonly performed invasive procedure these days for diagnosing the extent of coronary artery diseases among many other therapeutic purposes like angioplasty, valvular commisurrotomy, repairing congenital heart conditions etc. There is an exponential increase in the number of coronary angiographies being done across the cardiac centres of the various tertiary care hospitals.

Corresponding author: Maj Rajeena Enoch,
Clinical Instructor, College of Nursing, INHS, ASVINI, Mumbai, India.

This increase can be attributed to the increasing incidence of atherosclerosis owing to obesity and decreased physical activity. The lack of knowledge or excess of it is a cause of anxiety for the patients. This study aimed to assess the effectiveness of structured teaching on anxiety level and procedure compliance in patients undergoing coronary angiography in a selected cardiac hospital.

MATERIALS AND METHODS

The population for the present study constituted of patients undergoing planned coronary angiography in a selected cardiac hospital. As per the inclusion criteria, the patients were selected randomly and randomly allocated to experimental and control group.

A sample size of 96 patients as per the inclusion criteria, were randomly selected and randomly assigned to two groups: experimental and control (48 in each). The experimental group were given structured teaching on coronary angiography and the control group was given information as per the routine followed in the hospital. The tool used was TAPCICA (Tool to asses Anxiety & Procedure Compliance In Coronary Angiography) part-A,C,D constructed by the investigator, part B–which has the Spielberger's STAI-Form Y is a standardized tool for assessing the anxiety level of the patients). On the day of their admission after they report to the ward, their socio demographic data as well as their anxiety level was assessed using part A (Demographic data) and part B (STAI) of the tool TAPCICA. Structured teaching regarding the procedure of coronary angiography was administered to the selected patients in the intervention group one day prior to the scheduled coronary angiography.

The structured teaching included a video depicting the procedure of coronary angiography, a power point presentation regarding pre, intra and post procedure care of the patient, with simultaneous explanation by the investigator in the language best understood by the patient. They were familiarized with the cath lab, staff and the instruments used through the pictures in the power point slides. The teaching process was carried out one to one in an interactive environment in which the patient was able to clarify his/her doubts regarding coronary angiography and his/her role in it. On the day of the scheduled coronary angiography these patients were reassessed for their anxiety level in the cath lab waiting room. The procedure compliance of the patients was assessed using an observation checklist(part C of TAPCICA) during the procedure by the investigator herself. Also two physiological parameters: Heart rate and Blood pressure of the patients was measured on the cath table just before the procedure using part D of TAPCICA.

RESULTS

The data collected was analyzed using descriptive and inferential statistics. The statistical analysis revealed that the structured teaching programme resulted in a significant decrease in the level of anxiety in the experimental group ($p<0.0001$). Also, the experimental group had better procedure compliance as indicated by the difference in the mean compliance between the experimental and control group (4.77 Vs 2.65) as shown in Tables 1 & 2.

Table 1. Comparison of pre and post anxiety score between the study groups

N=96

Parameters	Experiment Mean ± SD (n_1=48)	Control Mean ± SD (n_2=48)	Test statistics Between the study groups)	p Value
Pre Anxiety Score	64.19 ± 6.56	61.96 ± 6.72	0.73	<0.05
Post Anxiety Score	32.27 ± 6.33	63.04 ± 5.14	0.45	<0.0001

Table 2. Comparison of mean procedure compliance score between the study groups

N=96

Parameters	Experiment n_1=48 Mean±SD	Control n_2=48 Mean±SD	test Z Value	p Value
Compliance score	4.77 ± 0.47	2.65 ± 0.60	.64	<0.0001

The study also brought out that there is a significant negative correlation between post anxiety score and compliance in the experiment group as $p< 0.001$. i.e. post intervention (structured teaching), the anxiety decreased and the compliance increased. The study also shows that 97.92% of the patients in the experimental group laid flat throughout the procedure as compared to only75% patients in the control group. Majority (97.2%) of patients in the experimental group coughed when asked to with required force as compared to only 62.5 % of patients in the control group. All the patients (100) % in the experimental group obeyed the commands given in between by the cardiologist whereas only 56.25% in the control group did so. Controlled breathing as per instruction was done by majority (93.75%) of patients in the experimental group as compared to only 35.42% in the control group. Also majority of patients in the experimental group (87.5%) informed about any discomfort they felt during the procedure, however only 39.58% in the control group verbalized their discomforts (Table 3)

Table 3. Percentage wise distribution of patients as per the desired actions indicating procedure compliance

N=96

Desired Actions By Patients During Coronary Angiography	Experiment n_1=48 %	Control n_2=48 %
Lies flat throughout the procedure	97.92	75
Coughs when asked to with required force	97.92	62.5
Obeys command	100	56.25
Does controlled breathing as per instruction	93.75	35.42
Informs about discomfort	87.5	39.58

Analysis

All data were entered into a database and data analysis was conducted using the Statistical Package for Social Science

(SPSS) version 17.0. Statistical inference procedures applied to analyze the data were: Frequency distribution and % for demographic data. Non parametric tests-Man Whitney and Wilcoxon's Sign ranked tests for comparison of anxiety between and within the study groups. Pearson's 'r' for calculating the correlation coefficient for anxiety and procedure compliance. For statistical significance 5% level of significance was considered for analysis of study data. An analysis of demographic variables, other than educational status demonstrated that the randomization had succeeded in providing relatively homogenous groups with regard to their key features such as age, sex, marital status, type of family, smoking and mode of payment . However, majority (54%) of patients in the experimental group were educated between IX to XII Std. 33% had primary education, 6% graduation and above .The majority in the control group (52%) were educated up to or below VIII Std followed by 32.4% educated between IX and XII Std. This shows that the groups were non homogenous in relation to their education level but the difference was not highly significant ($p<0.05$) and it was beyond the power of the investigator to control this variable.

DISCUSSION

This study confirms that all the patients undergoing coronary angiography and/or PCI have moderate to severe levels of anxiety. The study findings revealed that the patients who were given structured teaching on Coronary Angiography had lesser anxiety and better procedure compliance as compared to the control group who were given information regarding Coronary Angiography by the conventional method. There is a lack of effective educational intervention in the present setting regarding patient preparation for Coronary Angiography, which may be due to varied reasons like the mismatch between the increasing numbers of patients undergoing PCI and the limited number of the physicians and health care providers etc. Imparting structured teaching regarding coronary angiography and addressing the expected role of the patient during the procedure may result in greater reduction in the anxiety level and better procedure compliance by the patient during the procedure. The present study has highlighted the importance of providing information to the patients using appropriate audiovisual aids. Pre procedural information has a significant role in reducing the anxiety of the patients which increased the co operation of the patients during the procedure. The Standards for Nursing Care developed by the American Association of Critical Care Nurses clearly support a holistic approach to the care of the critically ill patient. A holistic approach is based on the premise that disease is never the result of one causative agent or condition but rather the result of a complex interplay between people and their physical, physiological, emotional, cultural, social and spiritual situations.

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