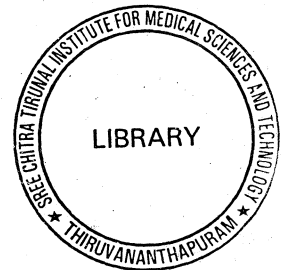


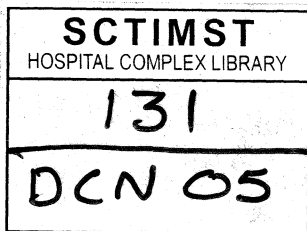
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**A STUDY  
TO ASSESS THE KNOWLEDGE REGARDING  
HOME CARE MANAGEMENT OF PATIENTS AFTER  
PERMANENT PACEMAKER IMPLANTATION (PPI)  
BEFORE AND AFTER HEALTH EDUCATION.**

**PROJECT REPORT**



**GAYATHRI SURENDRAN**



**SREE CHITRA THIRUNAL INSTITUTE FOR  
MEDICAL SCIENCE AND TECHNOLOGY**

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## CERTIFICATE

Certified that this study to assess the knowledge regarding home care management of patients after Permanent Pacemaker Implantation before and after health education; is a bonafide work of GAYATHRI SURENDRAN at the Sree Chitra Thirunal Institute of Medical Science & Technology.

Submitted in the partial fulfillment of the requirement for the diploma in Cardiovascular and Thoracic Nursing from the Sree Chitra Thirunal Institute of Medical Science and Technology.



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Thiruvananthapuram - 695 011

October 2005

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## CHAPTER - I

### **Introduction :**

Pacemaker is used to replace the function of the natural pacemaker of the heart when the heart is beating too slowly or vigorously. Those who having pacemaker should have a thorough knowledge about the symptoms of proper functioning and malfunctioning of the pacemaker.

After having a PPI, it may be necessary to avoid certain activities or conditions that may interrupt the signals sent by the pacemaker to the heart. Follow special precautions to avoid disaster. Before doing any diagnostic testing such as MRI or surgery, it should be informed to the health professional that he is having PPI.

Those having pacemaker must know the home care management after discharging such as wound care, restriction of activity, amount of weight they can taken, how to use cell phone, pacemaker identity card, the importance of changing pulse generator in time, the proper functioning of the pacemaker by checking the pulse, the type of clothes they can be used, regular follow up etc.

Regular follow up is necessary and is critical because adjustments will be made, that can prolong the life of pacemaker. A complete pacemaker check should be done 6 weeks after discharge from the pacemaker clinic. After that a pacemaker analysis is scheduled every 6 months (ie. In between telephone transmitted check up every 6 months). This will help to monitor the patients pacemaker's function and anticipate when it needs to be change.

Failure of device or lead can be life threatening in some patients. Medication, diet, life style, regular follow up, will help to live a more active life. They should have a thorough knowledge about the home care management after PPI to live a more active and successful life.

### **Background of the study**

The rate of implantation of pacemaker is ever increasing. A relatively simple, expeditious, percutaneous approach without the requirement of general anesthesia is now commonly used. However, the complication risk is ever present.

In our Hospital, the pacemaker is implanted for those having sick sinus syndrome, Complete Heart block and for severe bradycardia and severe tachyarrhythmias. Patients are admitted electively in the ward for PPI and after the procedure they are shifted to CCU for close monitoring. Sensing and pacing is verified, give them awareness about the restricted activity for 6 weeks, wound care, potential complications, need for regular follow up and programming. After 5-6 days Dressing is removed, and if no complications present, they are discharged with instructions to come for check up after 6 weeks.

## **Need and significance of the study**

Post PPI patients needs thorough knowledge about the home care management. In our hospital a post instruction leaflet is given. But this does not fully satisfy their doubts. Checking their knowledge about home care management and then giving health education about the safety measures they have to be taken and other precautions and treatment is highly helpful to increase their knowledge.

## **Statement of the Problem**

A study to assess the knowledge regarding home care management of patients after PPI (Permanent Pacemaker Implantation) before and after health education.

## **Definition of Terms**

- 1) Knowledge :- In this study investigator means knowledge as how much they aware about the activities and other measures they can be taken at home after PPI.
- 2) Home care management :- Includes activity restriction, safety measures, measures to prevent infection at the pacemaker insertion site, using of cell phone, importance of checking the pulse and importance of regular follow up.
- 3) Patients after PPI :- Means patients who undergo PPI at the recent time, who are coming for pulse generator changing, who are coming with specific complaints after PPI in the coronary care unit (CCU) and Cardio Medical Ward (CMW) of SCTIMST.

- 4) Before and after Health Education: Means how much knowledge did the patients had before health education and how much effective the health education was.
- 5) Health Education: Means giving ideas about home care management after PPI with thorough explanation to all specified areas.

### **Objectives of the Study**

To assess the knowledge regarding home care management after permanent pacemaker implantation.

To assess the effectiveness of health education in all areas of home care management after PPI.

### **Methodology**

In this study an interview method is used Investigator conduct a direct interview with the pts who are undergoing recent PPI or PG (Pulse Generator) change or who are coming with special complaints after PPI. Interview was based on a structural questionnaire related to home care management and it last for 15 to 20 minutes. After assessing their knowledge level, health education is given to specific areas where knowledge is lacking. After that a post assessment is made with the same questionnaire to find out the effectiveness of health education. In this study, total sample was 13patients. The validity of the questionnaire and health education is tested by the experts of SCTIMST. Duration of the study is from August to October. The pilot study gave information regarding the feasibility and effectiveness of the study. For each response, scoring also done, then study is continued with this tool.

## **Delimitation**

- Patients who are admitted for recent PPI, for PG change and who are coming with special complaints after PPI in CCU and CMW of SCTIMST.
- Samples are taken only within 2 months during the time of investigators study.
- Patients who understand Malayalam & English are only included.
- Patients who are co-operative are only taken in the study.
- The assessment of knowledge was limited to the responses to the structured questionnaire.

## **SUMMARY**

This chapter deals with introduction, background of the study, need and significance of the study, statement of the problem, definition of terms, objectives of the study, methodology and limitations.

## **ORGANISATION OF THE REPORT**

Chapter II deals with summary of related studies reviewed, chapter III deals with methodology of this study, chapter IV analysis, and interprets the finding chapter V represents a summary of the study – conclusion, implication, limitation and recommendation. The report also includes a selected bibliography & appendices.

## CHAPTER II

### REVIEW OF RELATED LITERATURE

Review of literature is an important aspect of any research from beginning to end. It gives character insight into the problems and helps in selecting methodology, tool and analyzing data. With these in view intensive review of literature has been done. Related literature was reviewed in depth so as to broaden the understanding of selected problem.

The review of literature relevant to the study is presented in the following sections.

- Studies related to the importance of proper follow up examining the mode and functioning of pacemaker periodically.
  - Studies related to the complications that may occur after PPI.
  - Studies related to special precautions or safety measures to be taken after PPI.
  - Studies related to precautions to be taken to prevent infection.
- 1) Studies related to the importance of proper follow up and examining the mode and functioning of pacemaker periodically.

Pavia & Colleagues (2001 Jan) conduct a study about how to minimize the incidence of complications after PPI. They investigate a study on the importance of regular follow up and the importance of periodic programming. By the investigator's approach, proper awareness of the potential complications, regular post follow up every 6 months, reporting immediately the symptoms of malfunction of pacemaker, follow safety measures etc can minimize the incidence of complication.

Muramatsu and Colleagues (Dec 2003) reported a case of cerebral embolism occurs 5 yrs after implantation of pacemaker. They conducted a study on a 65 years old man who was implanted with pacemaker for chronic brady cardiac atrial fibrillation associated with hypertension. After 5 years he had cerebral embolism with flaccid left hemiplegia. He could not sit and could tilt his head up for 2 minutes because of orthostatic hypertension. By modulating the rate responsive mode of pacemaker every 2-4 weeks, they were able to rehabilitate the patient. This case emphasize the importance of proper follow up and examining the mode and function of PPI periodically for a better functional outcome.

2) Studies related to the complications that may occur after PPI.

Rick A. Nishimura & Colleagues (May 2005) reviewed the records of 41 patients who underwent tricuspid valve operation for Tricuspid valve regurgitation which is caused by previously placed PPI or ICD leads. All

the patients come with dyspnoea, peripheral edema, fatigue etc. Valve malfunction due to PPI was found only in 5 of 41 patients pre-operatively by echocardiography. During surgery valve perforation found in 7 patients, lead enlargement in 4 patients, lead impingement in 16 patients and lead adherence in 14 patients. This case emphasizes the importance of reporting the signs and symptoms of tricuspid regurgitation promptly for undergoing treatment and surgery.

Howell and colleagues (July 2005) reported a case of cardiac tamponade 4 months after pacemaker implantation. He had fatigue, low urine output, restlessness and palpitation. On examination he had increased arterial BP. On auscultation, there was friction rub; and tachycardia. It was later found that a small perforation of the right atrial lead caused a slow effusion into the pericardial sac. So patients with these symptoms reported to the physician early to get effective treatment before going to severe heart failure.

Whelen KR and Colleagues (Aug 2005) conducted retrospective analysis of 250 records of newly implanted pacemaker patients to determine the rate of post implant complications. Of 250 pts., 4 pts required re-programming to increase the sensitivity safety margin. Patients with regular follow up and who had medications at correct time and follow safety measures had no complications.

Schuster and colleagues (Oct 1999) conduct a study of testing the effects of IV midazolam administration on learning retention after PPI. Subjects in the 1 hour group retained significantly less information than those taught at 3 hours after during administration. This study reviews the effect of midazolam on memory and learning as well as provide suggestion for alteration in patients education ie, 3 hrs after administration of midazolam.

Ning-Ping & Colleagues (April 2005) reported a case of delayed tamponade that result from pacemaker implantation. A 19 year old male patient with a pacemaker implanted 10 days earlier suffered from dyspnoea, syncope and went to the hospital. This study revealed delayed perforation of right ventricle due to PPI. This study emphasizes the importance of patients to report immediately if symptoms of cardiac aanponade such as dyspnoea, syncope, and restlessness.

3) Studies related to special precautions or safety measures to be taken after PPI.

Madigan & Colleagues (November 1999) reported that the patient with PPI can undergo surgery safely with special precautions. If electro cattery is used, pacemaker should be placed in a triggered or asynchronous mode. If Defibrillation is used the current flow between the

paddles should be kept far away from and is perpendicular to the lead system. If MRI scan or radiation therapy is used, the pacemaker should be properly shielded. This study helps the post PPI patients to be aware that they can safely undergo surgery, MRI Scan, Defibrillation without any fear or anxiety.

4) Studies related to precautions to prevent infection.

Jimmy Dig & Colleagues (October 2000) reported a study on 123 pts with PPI who had infections. They had mild to severe fever, redness and haematoma around the puncture site. To prevent infection, proper wound care is necessary. Prophylactic antibiotics should be taken at correct and appropriate time. In severe infection, reimplantation at a remote anatomic site, might be considered.

Eric Dumont & Colleagues (October 2003) assess the clinical value in patients with suspected lead infection. They selected 77 pts with clinical signs such as local abscess, pain, loss of normal mobility under the skin, infection of the subcutaneous part of the lead, extrusion of material; clinical fever, chills, septic shock, biological infection syndrome, (hyperleukocytosis > 12000/mm<sup>3</sup>, CRP > 10mg/l) presence of abnormal neostructures seen on TEE (Trans esophageal Echocardiography). This study emphasize to report the clinical signs of local infection immediately if present to prevent further complication.

## SUMMARY

The review of literature on the above areas helped the investigator to gain deeper knowledge about risk factors of home care management after PPI, which in turn helped in construction of the tools.

The literature review also helped in design of the study, development of tool, information about sample, data collection procedure and plan of analysis.

## **CHAPTER III**

### **METHODOLOGY**

This chapter deals with research approach, research design, setting, sampling, development of tool, procedure for data collection and plan of analysis.

Methodology is a way of systematically solving the problem. It may be understood as a science of studying how research is doing scientifically. This chapter provides a brief description of different steps taken to conduct this study.

#### **Research Approach**

Interview method by using a questionnaire was conducted in the study. The main objectives are 1) To assess the knowledge regarding home care management after permanent pacemaker implantation (PPI) 2) To assess the effectiveness of health education in all areas of home care management after PPI.

The interview method is used, since the study was designed to assess knowledge regarding home care management after permanent pacemaker implantation before and after health education and it is the most effective way in assessing their problems during home care.

## **Research Design**

Research Design was concerned with overall framework for conducting the study for fulfilling the objectives of the study, the following design was utilized for collection and analysis of data as shown in Table 1.

**Systematic Design of the Study**

Attribute Variables	Study Sample	Tool	Criterion Measure
<div data-bbox="181 715 371 786" style="border: 1px solid black; padding: 2px; display: inline-block;">Knowledge</div> <div data-bbox="468 592 707 691" style="border: 1px solid black; padding: 2px; display: inline-block; margin-left: 100px;">Before Health Education</div> <div data-bbox="468 788 707 887" style="border: 1px solid black; padding: 2px; display: inline-block; margin-left: 100px; margin-top: 20px;">After Health Education</div>	<div data-bbox="815 592 1077 691" style="border: 1px solid black; padding: 2px; display: inline-block;">Study Sample 13 Patients</div> <p>Study sample includes recent post PPI patients, patients coming for (PG) pulse generator change and those coming with special complaints after PPI.</p>	<p>Interview method with a structured questionnaire before and after health education</p>	<ul style="list-style-type: none"> <li>• Safety measures</li> <li>• Activity Restriction</li> <li>• Measures to prevent infection</li> <li>• Signs of proper functioning of pacemaker</li> </ul>

14

Table 1

The attributed valuables included in this study were the assessment of knowledge before and after health education. The criterion measure was the scores obtained in the knowledge test.

### **Setting**

The study was conducted in Sree Chitra Thirunal Institute for Medical Science and Technology, Thiruvananthapuram.

The rationale for selecting SCTIMST for study was the investigator's interest in finding out knowledge regarding home care management after permanent pacemaker implantation (PPI) before and after health education. And also the investigator was most familiar with this institution. The post PPI patients are selected from CACCU and CMWD of SCTIMST, Thiruvananthapuram for this study.

### **Population**

The population of this study includes the post PPI patients who are recently undergone PPI, who are coming for pulse generator (PG) change and those who come with special complaints after PPI in the CACCU and CMWD of SCTIMST, Thiruvananthapuram.

## **Sample and Sampling Techniques**

Purposive sampling techniques was used to select the samples for the study. Two stage sampling was used for the present study. In the first stage 3 samples were selected for the pilot study. In the second stage 13 patients are selected for the study for one month duration. The total duration of the study period include from August 2005 to September 2005.

## **Criteria for Sample Collection**

- **Inclusion Criteria:**

Patients who are admitted for recent PPI, for PG change and who are coming with special complaints after PPI in CCU and CMWD of SCTIMST, Thiruvananthapuram.

Patients who understand Malayalam and English are only included.

- **Exclusion Criteria:**

Patients who are not co-operative are excluded from the study.

## **Development of Tool**

An extensive review and study of literature helped in preparing items for the tool. The tool was examined and content validity is tested by the experts of SCTIMST. A multiple choice questionnaire of 24 questions is prepared based on the literature. After obtaining prior permission from the authorities and patients direct interview was done.

The steps taken for development of tool are presented below:

### **Step I**

A structural questionnaire of 24 questions for assessing the knowledge before and after health education was made, based on the literature reviewed on expert's opinion.

### **Step II**

The tool was pilot test on a sample of 3 persons. The time taken for completion of the interview varied from 15 to 20 minutes.

### **Step III**

Pilot study gave information regarding the feasibility and effectiveness of the study. For each response, scoring also done. Then the remaining study was continued with the tool.

### **Description of Tool**

The tool used in the present study consisted of two parts.

**Part I:** It comprised of demographic characteristics of post PPI patients such as age, sex, occupation, educational and economical status.

**Part II:** It consists of 24 questions for assess the knowledge about home care management among patients after PPI recently, who are admitted for pulse generator (PG) change and those who came with special complaints after PPI. In this, knowledge regarding safety measures, activity restriction, prevention of infection, signs of proper functioning are also assessed.

For each question, multiple choice answers were given, out of which only one answer was the best. Test scoring was done by giving a credit of one for the best response. Then pre-structural health education

is given with special attention to specific areas where scoring is low. After that a post assessment is made to find out the effectiveness of health education. Scoring was also done individually for specific areas such as safety measures, activity restriction, prevention of infection, and signs of proper functioning of pacemaker.

### **Pilot Study**

After obtaining permission from the authorities, study started on 26.08.2005. The purpose of this pilot study was to modify the original tools and pamphlets. Interviewed the post PPI patients with a structured questionnaire, after getting signed consent. With necessary modification the tool was pilot tested on a random sample of 3 patients initially.

The time taken for completion of the interview varied from 15 to 20 minutes. The pilot study gave information regarding the feasibility and effectiveness of the study. The pilot study participants were excluded from the main study. For each response scoring also done, then study is continued with this tool.

## **Data Collection**

The data were collected from the post PPI patients in CACCU and CMWD of SCTIMST. Formal permission was obtained from the authorities of SCTIMST. Period of data collection was from 2<sup>nd</sup> September to 23<sup>rd</sup> October 2005.

The investigator was introduced to post PPI patients about the purpose of the study and the confidentiality of their responses were assessed. The time taken for completion of the interview was 15 to 20 minutes. After that a pre-structured health education was given with special attention to specific areas in which knowledge is lacking. Again a post assessment is made to find out the effectiveness of health education.

## **Plan of Analysis**

A plan of analysis was developed by the investigator after the pilot study. The data obtained from knowledge test would be analysed by descriptive statistics. Percentages would be used for describing the sample. Frequency pie and bar diagram would be utilized to represent the distribution of total scores and sub scores in specific areas of home care management after PPI.

## Summary

This chapter presented the research approach used for the study, design of the study, setting of the study and sampling technique. A description of the development of knowledge test is given, along with plan for data collection and analysis.

## CHAPTER IV

### ANALYSIS AND INTERPRETATION

This chapter analysis and interprets the data obtained from knowledge test administered to 13 post PPI patients in the CCU and CMWD of SCTIMST.

The purpose of the present study was to assess the knowledge of home care management after PPI among patients who came directly for PPI, those come for PG change and those come with specific complaints after PPI.

The analysis of data are presented in three sections.

I. Sample Characteristics: It includes name, age and job of the patient.

II. a) Data on post PPI patient's knowledge in all studied areas.

b) Data on post PPI patient's knowledge in specific content areas.

Area 1 —————> Activity restriction

Area 2 —————> Safety measures

Area 3 —————> Infection control

Area 4 —————> Signs of proper functioning of pacemaker

III. Data of patients in different categories taken for the study.

a) Admitted for PPI

b) Admitted for PG change

c) Admitted for specific complaints after PPI

IV. Data on knowledge of patients in different categories

## Description on Sample Characteristics

Sample of 13 patients are selected for the study. The demographic data included were age, sex, and occupation of post PPI patients.

Distribution of post PPI patients among demographic variables.

<b>Demographic Data</b>		<b>Total Number</b>	<b>Percentage</b>
a) <u>Age</u>	Below 40 Yrs	1	7.69%
	40-70Yrs	7	53.84%
	Above 70 Yrs	5	38.46%
b) <u>Sex</u>	Male	7	53.84%
	Female	6	46.15%
c) <u>Occupation</u>	Working	7	53.84%
	Not Working	4	30.76%
	Retired	5	38.46%

Table 2

a) Distribution of post PPI patients among their age groups are shown in Figure 1 as bar diagram.

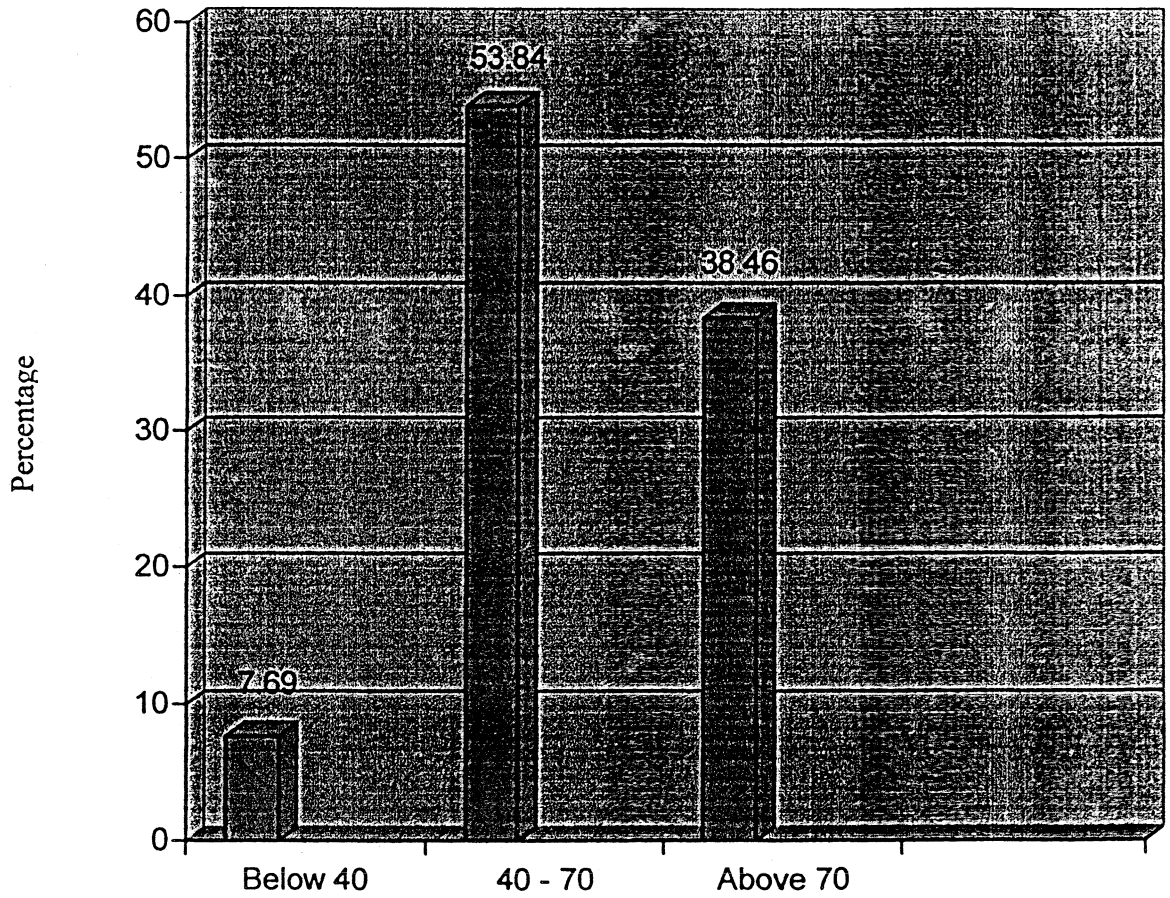


Figure 1

b) Distribution of post PPI patients according to their sex are shown in Figure 2 as pie diagram.

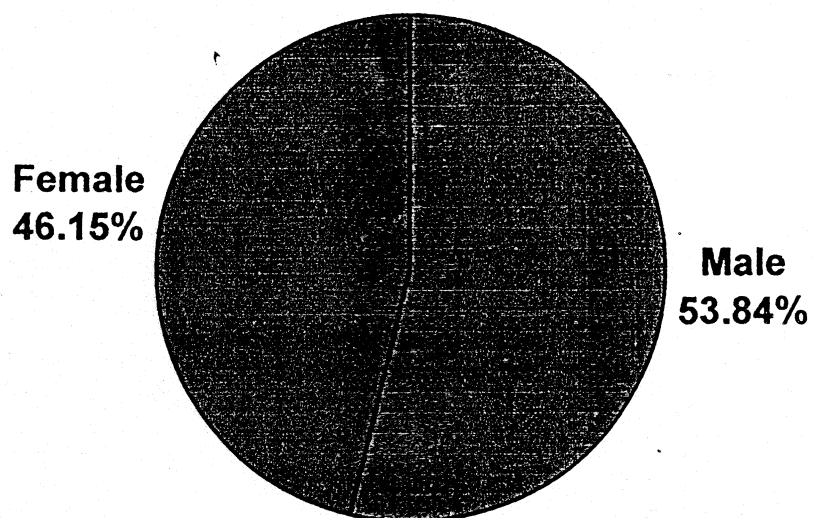


Figure 2

II. a) Data on post PPI patient's knowledge in all studied areas.

This part of analysis show the distribution of total sample of 13 post PPI patients and their pre-knowledge about the home care management after PPI and post knowledge after health education. Total knowledge score before health education was 32.3% and total knowledge after health education was 94.18%. Data are shown in Figure 4 as bar diagram.

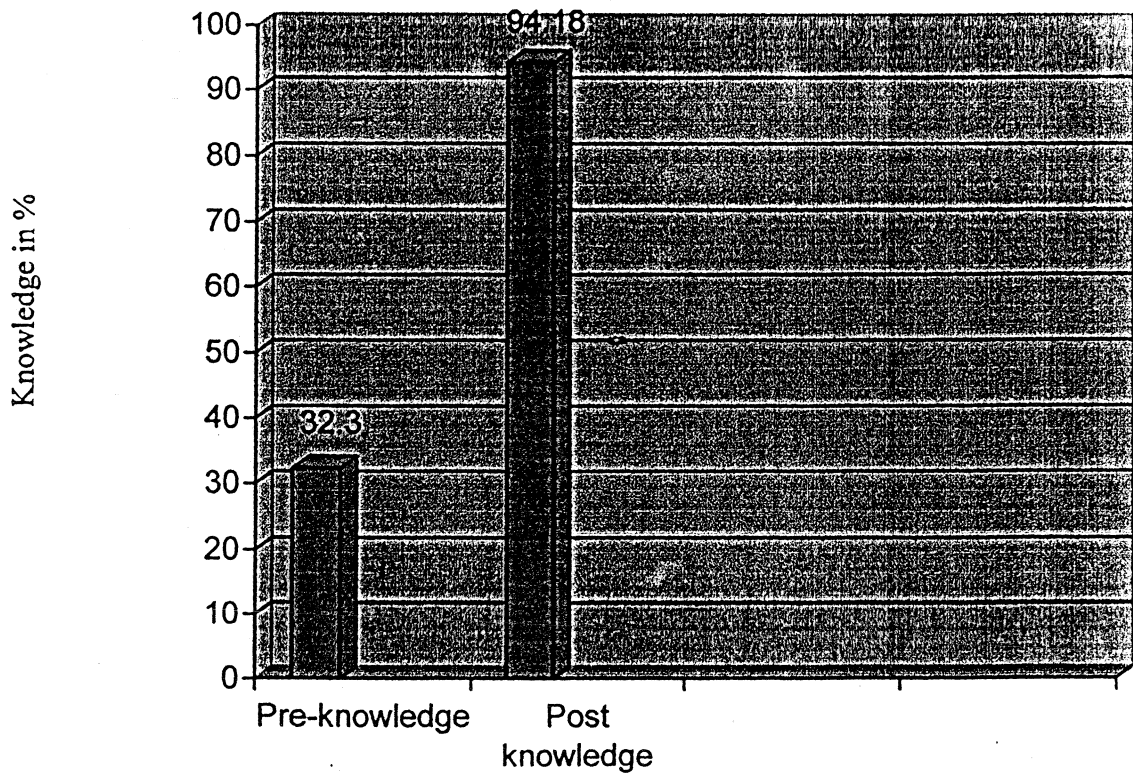


Figure 4

Total knowledge before and after health education.

c) Distribution of post PPI patients according to the occupation as bar diagram.

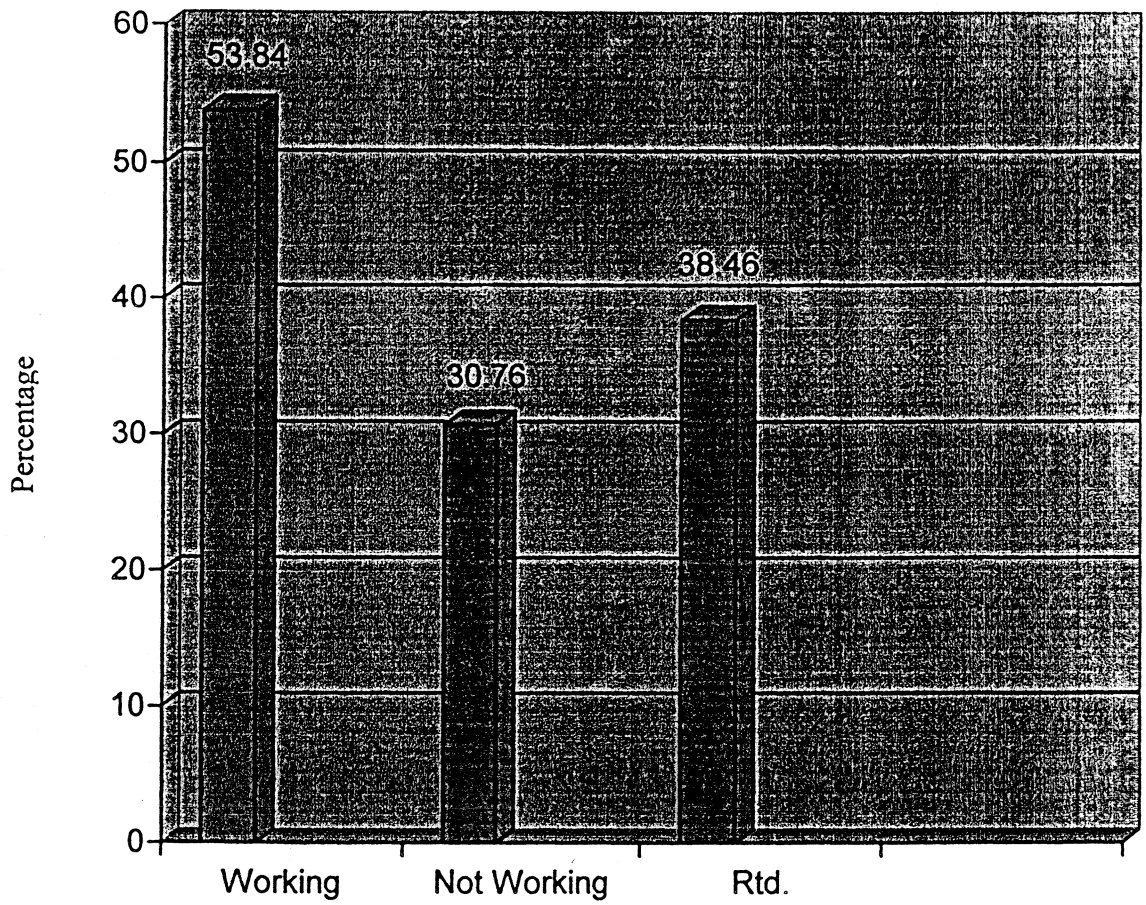


Figure 3

b) Data of patient's knowledge in specific content areas.

This part of the analysis shows the mean knowledge, sub-scores achieved in specific content areas. Safety measures, activity restriction, prevention of infection, and signs of proper functioning of pacemaker. Data are presented in the form of bar diagram for purpose of comparison.

The mean knowledge sub-scores achieved by total sample in specific content areas before health education are shown in Figure 5. Data indicated that the maximum knowledge score was in knowledge about proper functioning of pacemaker – 48.07% – and minimum knowledge score was in prevention of infection at the pacemaker insertion site i.e., 11.53%.

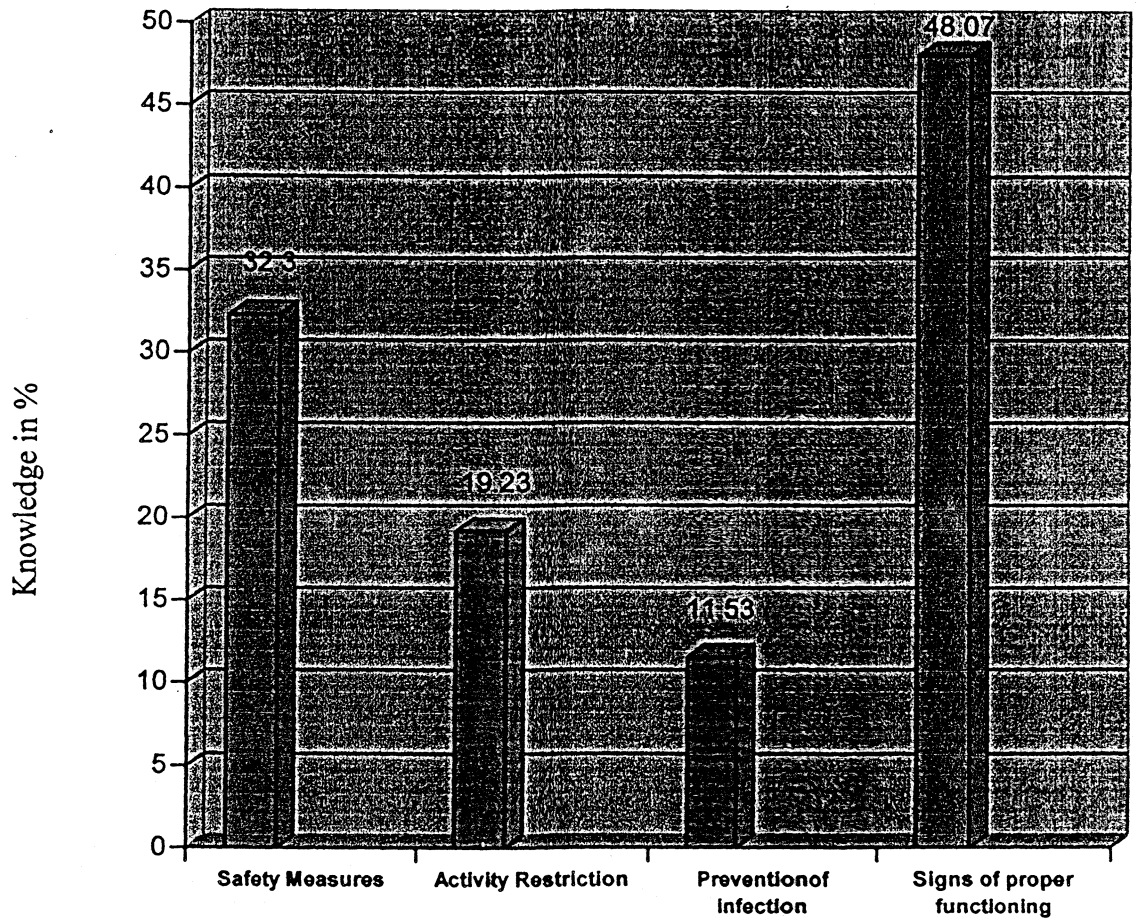


Figure 5

Knowledge on specific content areas before health education.

The mean knowledge sub-scores achieved by total sample in specific areas after health education are shown in Figure 6 as bar diagram.

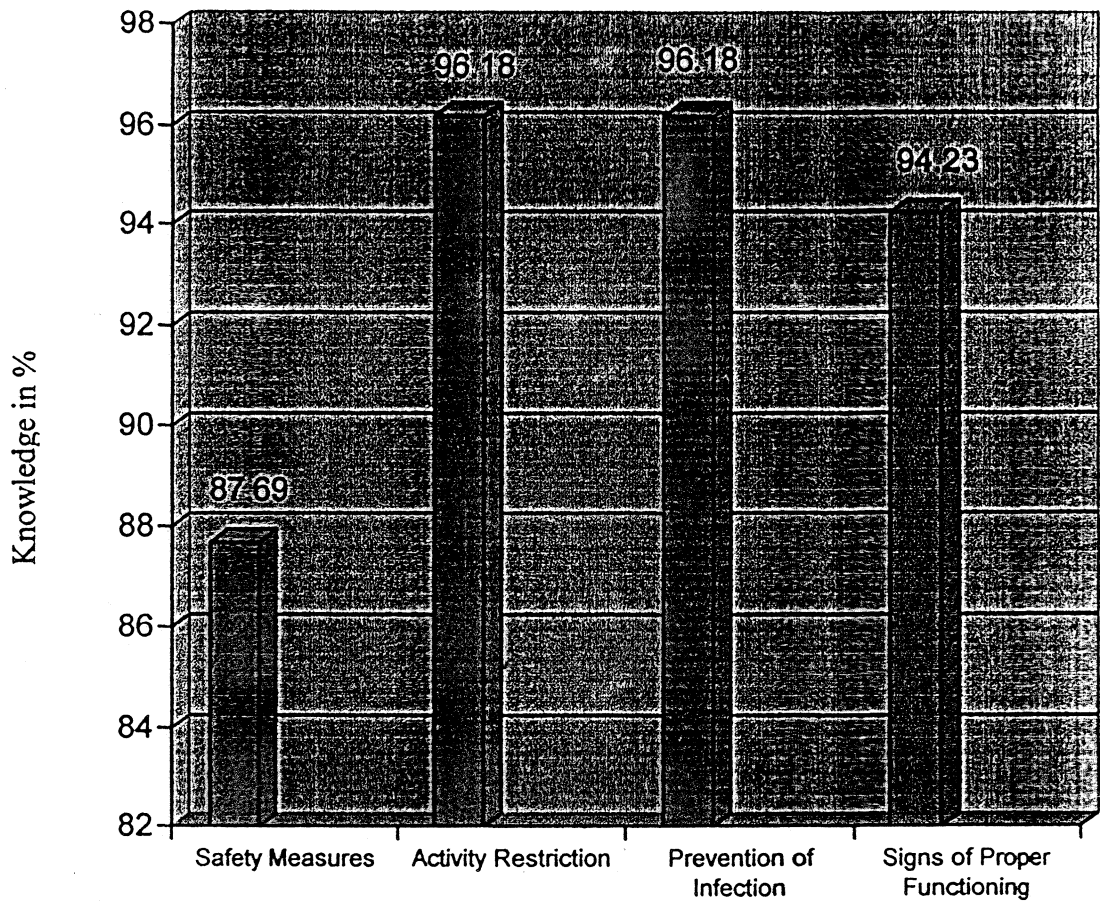


Figure 6

Knowledge on specific content areas after health education.

### III. Data of patients in different categories

This part of analysis shows the different categories of patients taken for sampling.

- a) Admitted for recent PPI
- b) Admitted for PG change
- c) Those admitted for treating special complaints after PPI.

Patients in different categories are shown in Fig.7 as bar diagram. This study includes patients admitted for recent PPI - 53.84%, patients admitted for PG change - 38.46%, and patients admitted for treating special complaints after PPI - 7.69%.

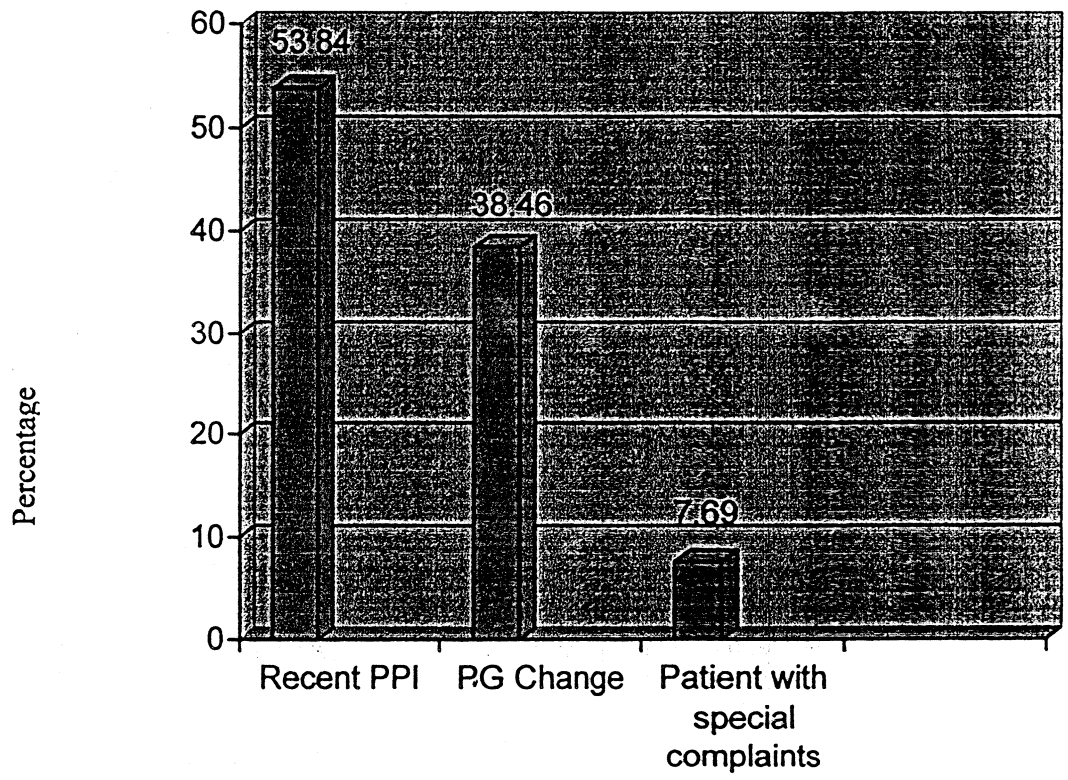


Figure 7

IV. Data on knowledge of patients in different categories in all studied areas.

This part of analysis shows the knowledge of post PPI patients in different categories – i.e., recently undergoing PPI patients, patients who are admitted for PG change and those come with specific complaints after PPI. Total knowledge in different categories are shows in Figure 8. Total knowledge recently undergone PPI patients before health education was 46.66% and those coming for PG change was 64.13% and those who came with special complaints was 58.3%.

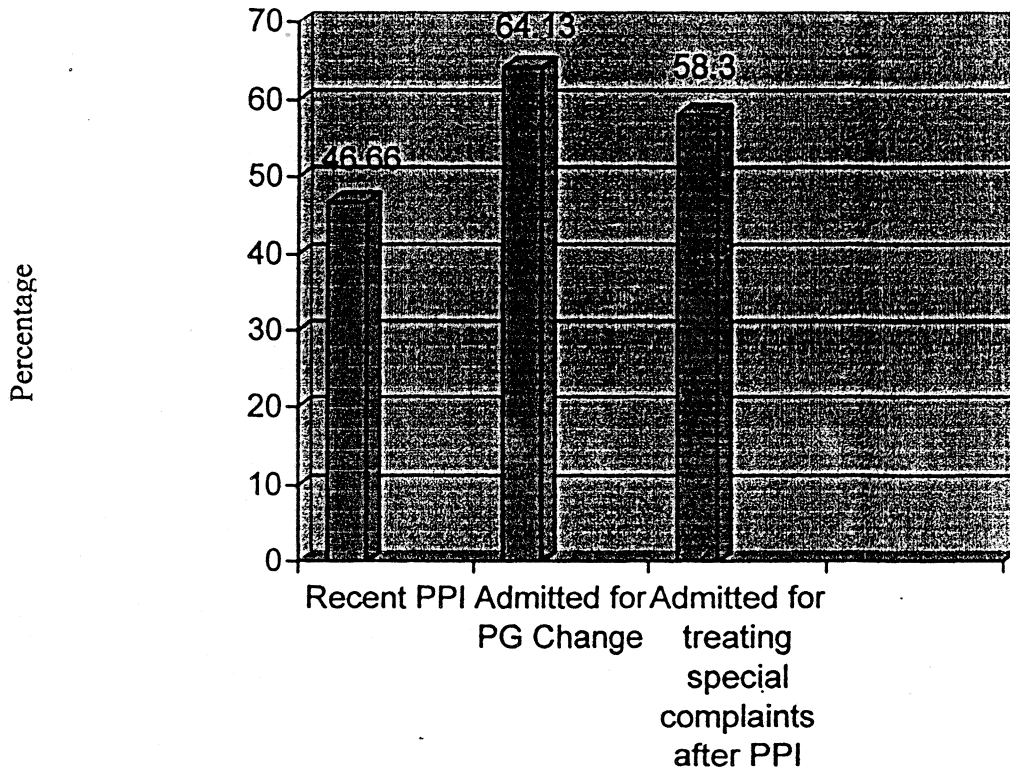


Figure 8

Total Knowledge of post PPI patients in different categories before health education.

The total knowledge after health education in different categories of post PPI patients are shown in Figure 8 i.e., recently PPI patients – 92.4%, those admitted for PG change – 95.83% and those came for treating special complaints after PPI – 91.66%.

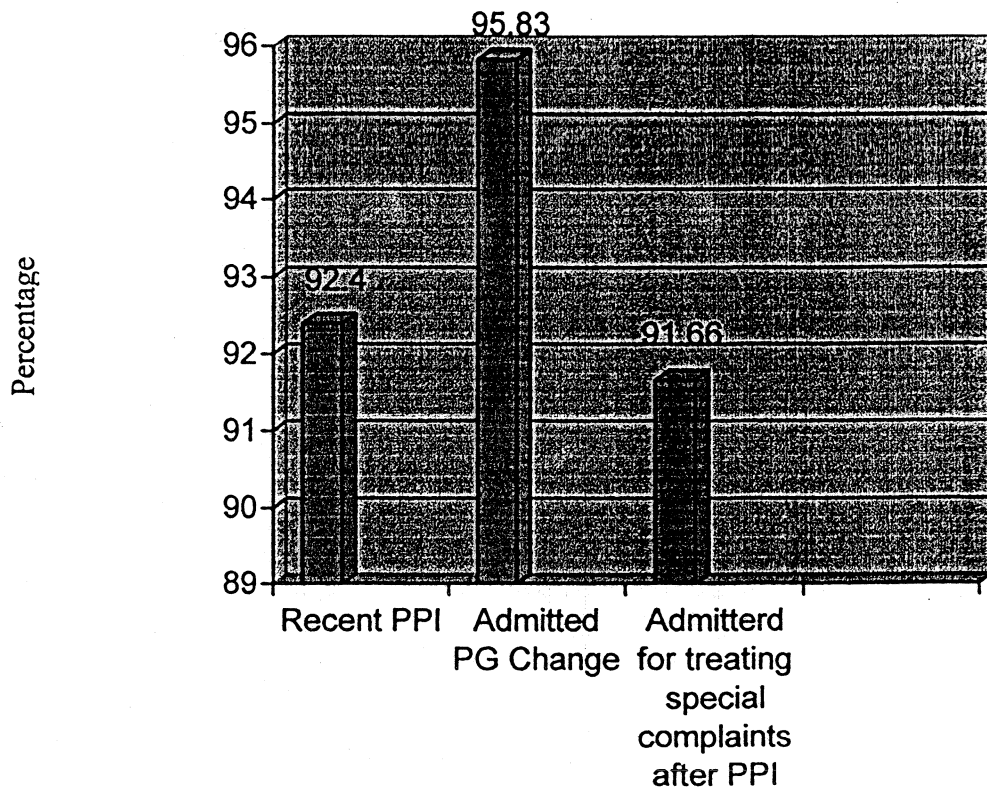


Figure 9

Total knowledge of post PPI patients in different categories after health education.

## Summary

This chapter dealt with analysis and interpretation of data collected from post PPI patients. Descriptive statistics was used for the analysis. Bar diagram and pie diagrams were used to describe the knowledge scores of the sample.

## CHAPTER V

### SUMMARY, CONCLUSIONS & RECOMMENDATIONS

This chapter gives a brief account of the present study including conclusions drawn from the findings and possible application of the results. Recommendations for future research and suggestions for improving the present study are also presented.

#### Summary

This study was undertaken to assess the knowledge of post PPI patients before and after health education who are admitted in CMWD and CACCU of SCTIMST, Thiruvananthapuram.

The specific objectives of the study are:

- To assess the knowledge regarding home care management after PPI, before and after health education.
- To assess the effectiveness of health education in all content areas of home care management.

Need for study includes assessment of base line knowledge among post PPI patients. Since education is one method of improving the

knowledge of post PPI patients, the investigator gave health education in specific areas of home care management after PPI and a post assessment was made to find out its effectiveness.

The review of related literature helped the investigator in understanding the factors to be practiced to prevent complications and helped to prepare methodology and developing the tool on home care management.

A structured questionnaire of 13 questions were developed, content validity was determined and pilot testing was done.

The study was conducted in Sree Chitra Thirunal Institute of Medical Science and Technology at CACCU (Comprehensive Acute Coronary Care Unit) and Cardio Medical Ward (CMW) in September and October 2005. The sample comprised of 13 patients.

The data obtained were analysed by using descriptive statistics. Both bar and pie diagrams were utilized to represent the distribution of knowledge before and after health education on the basis of scores obtained in all studied areas and following specific content areas – safety measures, activity restriction, prevention of infection, and signs of proper functioning of pacemaker.

The major findings of the study are:

- a) The knowledge score of post PPI patients before health education is 54.27%.
  - b) The mean knowledge score of post PPI patients after health education is 94.18%.
- The mean knowledge sub scores in specific content areas before health education, in that maximum knowledge score was in knowledge about signs of proper functioning of pacemaker was 48.07% and minimum knowledge score was in prevention of infection at the pacemaker insertion site was 11.53%.
  - The mean knowledge sub scores in specific content areas after health education, in that maximum knowledge score was in activity restrictions and prevention of infection i.e., 98.18% and minimum knowledge score was in knowledge about safety measures i.e., 87.69%.

## **Implications**

Few implications can be drawn from the findings of this study. This information can be used by staff nurses, student nurses and other health professionals. Instructional programmes on health education helps in the promotion of educational aspects of the patients. Health education on home care management after PPI is very helpful for the patients in understanding safety precaution, the activity restriction, prevention of infection, signs of proper functioning of pacemaker and regular follow up.

## **Limitations**

- 1.The tool has been developed by the investigator and no standardized tool was available.
2. Study was limited to the post PPI patients in CACCU and CMWD of SCTIMST, Thiruvananthapuram.
3. Only limited samples are included in the study.

## **CONCLUSION**

Based on the findings of the study the following conclusions were drawn.

- 1) The knowledge of patients about home care management after PPI before giving health education is 54.27%.
- 2) The knowledge of patients about home care management after PPI after giving health education is 94.18%.

From this study the investigator found that health education is very effective in increasing the patients' knowledge about home care management after PPI.

## **RECOMMENDATIONS**

The following recommendations are made on the basis of the present study.

1. A similar study can be conducted in Medical Colleges and other hospitals where permanent pacemaker implantation is done.

2. A seminar can be conducted for post PPI patients once in every month or at least once in every year for improving the knowledge regarding home care management and to clear their doubts.
3. Health education is more effective than giving a post instruction leaflet in SCTIMST for post PPI patients.

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## APPENDIX

### Form for informed consent

Name

Age

Sex

Occupation

Diagnosis

Signs & Symptoms

Drugs taken

I am willing to co-operate with you for assessing our knowledge regarding the disease condition (about home care management after PPI) using a questionnaire. Having understood that this is a part of a study to assess the knowledge about home care management after PPI. I hereby give my consent, participate in this study.

Date :

Name :

Signature :

പേര്

വയസ്സ്

ജോലി

സാമ്പത്തിക നിലവാരം

രോഗം

രോഗ ലക്ഷണം

ഇപ്പോൾ കഴിക്കുന്ന മരുന്നുകൾ

സമ്മതപത്രം

എന്റെ അസുഖവുമായി ബന്ധപ്പെടുത്തി അറിവ് പരിശോധിക്കുന്നതിന് വേണ്ടി എന്നോട് കുറച്ച് വിവരങ്ങൾ ചോദിക്കുന്നതിനും അതിലെ പോരായ്മകൾ എന്നെ പറഞ്ഞ് മനസ്സിലാക്കുന്നതിനും ഞാൻ പൂർണ്ണമായി സമ്മതിക്കുന്നു. ഇത് ഒരു പഠനത്തിന്റെ ഭാഗമായാണ്. അതായത് “പേസ് മേക്കർ വച്ചതിനുശേഷം രോഗികൾ ശ്രദ്ധിക്കേണ്ട കാര്യങ്ങൾ” എന്ന വിഷയത്തെക്കുറിച്ച് നിലവിലുള്ള ലിഖിത നിർദ്ദേശങ്ങൾ വിലയിരുത്തുന്ന തിനുള്ള ഒരു പഠനം. ഇതിന് വേണ്ടി ഞാൻ സഹകരിച്ച് കൊള്ളാമെന്ന് സമ്മതിക്കുന്നു.

എന്ന്,

പേര് :

ഒപ്പ് :

## QUESTIONS

### BIO - DATA

Name

Age

Sex

Occupation

Socio-economic status

Chief complaints

Symptomatic for

Drugs

- 1) Do you know about pacemaker (Yes/No)
- 2) Any family history of cardiac disorder/pacemaker (Yes/No)
- 3) Are you a smoker (Yes/No)
  - a) How long you are smoking
  - b) How many cigarettes/day
- 4) Are you an alcoholic (Yes/No)
- 5) Any history of diabetes, HTN, hypercholesterimia (Yes/No)
- 6) Are you anxious about the procedure (Yes/No)
- 7) Do you know the importance of implanting pacemaker (Yes/No)
- 8) Do you know to check pulse (Yes/No)

- 9) Do you know about the importance of checking pulse (Yes/No)
- 10) Do you know how to prevent infection at the site?  
(Wash only in ordinary water, clean with soapy water, clean and then apply cream and powder)
- 11) How to know whether there is infection at the site?  
(fever, haematoma, draining from the site; chest pain, palpitation)
- 12) Do you know about the safety measures after PPI? (Yes/No)
- 13) You can go near to which of the following electric materials after PPI?  
(Radio, Television, Transformer, Leaking electric material)
- 14) You can undergo which of the following procedures after PPI  
(MRI Scan, CT Scan, Ultra Sound Scan)
- 15) How much weight you can taken after PPI  
[Below 5 kg (5-10 pounds), 5-10 Kg, 10-15 kg]
- 16) Which activities can be restricted to the arm at the affected site. (raising the hand above the shoulder level, stretching the hand towards the back, extending the arm).
- 17) What type of dress you can be used after PPI?  
(Tight clothing, Loose clothing, Don't know)
- 18) Are you an user of mobile phone? (Yes/No)
- 19) How much distance can you kept the mobile phone after PPI?  
(5cm, 2cm 12cm)

- 20) Mobile phone cannot be kept in which of the following parts  
(On the pocket at the site of pacemaker, on the packet opposite to the site of pacemaker, don't know)
- 21) Do you know the importance of wearing pacemaker identity card at all times  
(Yes/No)
- 22) Do you know the importance of changing pulse generator in time? (Yes/No)
- 23) How you will confirm that pacemaker is working properly?  
(Pulse rate above 60/mt, Pulse rate below 60/mt, Don't know)
- 24) How often you will come for check up after PPI  
(every 6 months, every 10 months, every 1 year)

## ചോദ്യം

പേര്

വയസ്സ്

ജോലി

സാമ്പത്തിക നിലവാരം

രോഗം

രോഗ ലക്ഷണങ്ങൾ

- 1) താങ്കൾക്ക് പേസ്മേക്കറിനെപ്പറ്റി അറിയാമോ?  
(അറിയാം, അറിയില്ല)
- 2) താങ്കളുടെ കുടുംബത്തിൽ ആർക്കെങ്കിലും ഹൃദയ സംബന്ധമായ അസുഖം ഉണ്ടോ?  
(ഉണ്ട്, ഇല്ല)
- 3) താങ്കളുടെ കുടുംബത്തിൽ ആരെങ്കിലും പേസ്മേക്കർ വെച്ചിട്ടുണ്ടോ?  
(ഉണ്ട്, ഇല്ല)
- 4) നിങ്ങൾ പുകവലിക്കാറുണ്ടോ?  
(ഉണ്ട്, ഇല്ല)
  - a) ഉണ്ടെങ്കിൽ ഒരു ദിവസം എത്ര എണ്ണം വലിക്കും?
  - b) എത്ര നാളായി പുകവലിക്കാൻ തുടങ്ങിയിട്ട്?
- 5) താങ്കൾ മദ്യപിക്കാറുണ്ടോ?  
(ഉണ്ട്, ഇല്ല)
- 6) പ്രമേഹം, രക്തസമ്മർദ്ദം, കൊഴുപ്പ് എന്നിവയിൽ ഏതെങ്കിലും അസുഖം ഉള്ളതായി അറിയാമോ?  
(അറിയാം, അറിയില്ല)
- 7) താങ്കൾ പേസ്മേക്കർ വയ്ക്കുന്നതിന്റെ ആവശ്യകതയെപ്പറ്റി ബോധവാനാണോ?  
(ആണ്, അല്ല)
- 8) താങ്കൾക്ക് പേസ്മേക്കർ വയ്ക്കുന്നതിൽ ഭയം ഉണ്ടോ?  
(ഉണ്ട്, ഇല്ല)

- 9) താങ്കൾക്ക് പേസ്മേക്കർ വച്ചതിനുശേഷം നാഡിയിടിപ്പ് നോക്കുന്നതിന്റെ ആവശ്യകതയെപ്പറ്റി അറിയാമോ?  
(അറിയാം, അറിയില്ല)
- 10) താങ്കൾക്ക് നാഡിയിടിപ്പ് നോക്കുവാൻ അറിയാമോ?  
(അറിയാം, അറിയില്ല)
- 11) പേസ്മേക്കർ വയ്ക്കുന്ന സ്ഥാനത്ത് അണുബാധ ഉണ്ടാകാതിരിക്കാൻ എങ്ങനെ ശ്രദ്ധിക്കും?  
(പച്ചവെള്ളത്തിൽ മാത്രം കഴുകും, സോപ്പ് വെള്ളത്തിൽ കഴുകും, മുറിവിൽ എണ്ണയും പൗഡറും പുരട്ടും, അറിയില്ല)
- 12) പേസ്മേക്കർ വച്ച ഭാഗത്ത് അണുബാധ ഉണ്ടോ എന്ന് എങ്ങനെ മനസ്സിലാക്കാം?  
(പനിയുണ്ടാവുകയോ മുറിവ് നീരുവയ്ക്കുകയോ മുറിവിൽ നിന്ന് വെള്ളം വരികയോ ചെയ്യുക, നെഞ്ചുവേദന, അറിയില്ല)
- 13) പേസ്മേക്കർ വച്ചതിനുശേഷം ഉള്ള സുരക്ഷാ കാര്യങ്ങളെക്കുറിച്ച് അറിയാമോ?  
(അറിയാം, അറിയില്ല)
- 14) പേസ്മേക്കർ വച്ചയാൾ ഏതെല്ലാം ഇലക്ട്രിക്കൽ ഉപകരണങ്ങളുടെ അടുക്കൽ പോകുവാൻ പാടില്ല?  
(ട്രാൻസ്ഫോമർ, റേഡിയോ, ടെലിവിഷൻ, വൈദ്യുതി ലീക്കുള്ള ഇലക്ട്രിക് ഉപകരണങ്ങൾ)
- 15) നിങ്ങൾക്ക് ഏതെല്ലാം സ്കാനിങ്ങിന് വിധേയനാകാം?  
(എം.ആർ.ഐ. സ്കാൻ, സി.റ്റി. സ്കാൻ, അൾട്രാ സൗണ്ട് സ്കാൻ, അറിയില്ല)
- 16) പേസ്മേക്കർ വച്ചതിനുശേഷം എത്ര ഭാരം എടുക്കാം?  
(5 കിലോയിൽ താഴെ, 5 - 10 കിലോ, 10 - 15 കിലോ)
- 17) പേസ്മേക്കർ വച്ചിരിക്കുന്ന വശത്തെ കൈ എങ്ങനെയെല്ലാം ചലിപ്പിക്കാം?  
(പൊക്കാം, പിന്നോട്ട് വളക്കാം, വശത്തേക്ക് ചലിപ്പിക്കാം)
- 18) താങ്കൾക്ക് ഏത് രീതിയിലുള്ള വസ്ത്രധാരണം ചെയ്യാം?  
(ഇറുകിയ വസ്ത്രങ്ങൾ, അയവുള്ള വസ്ത്രങ്ങൾ, അറിയില്ല)
- 19) പേസ്മേക്കർ വച്ചിരിക്കുന്നു എന്ന കാര്യം കൈയിൽ എപ്പോഴും ഉണ്ടായിരിക്കുന്നതിന്റെ പ്രാധാന്യത്തെപ്പറ്റി അറിയാമോ?  
(അറിയാം, അറിയില്ല)

- 20) നിങ്ങൾ മൊബൈൽ ഫോൺ ഉപയോഗിക്കുന്ന ആളാണോ?  
(ആൺ, അല്ല)
- 21) പേസ്മേക്കർ വെച്ചിരിക്കുന്ന ആൾ മൊബൈൽ ഫോൺ ഏതെല്ലാം ഭാഗത്ത് വയ്ക്കുവാൻ പാടില്ല?  
(പേസ്മേക്കർ വെച്ചിരിക്കുന്ന വശത്ത്, പേസ്മേക്കർ വെച്ചിരിക്കുന്നതിന്റെ എതിർവശത്ത്)
- 22) പൾസ് ജനറേറ്റർ മാറ്റേണ്ട സമയത്ത് തന്നെ മാറ്റേണ്ടതിന്റെ പ്രാധാന്യത്തെപ്പറ്റി അറിയാമോ?  
(അറിയാം, അറിയില്ല)
- 23) പേസ്മേക്കർ കൃത്യമായി പ്രവർത്തിക്കുന്നുണ്ടോ എന്ന് എങ്ങനെ മനസ്സിലാക്കാം?  
(നാഡിയിടിപ്പ് 60 ന് മുകളിൽ, നാഡിയിടിപ്പ് 60 ന് താഴെ, അറിയില്ല)
- 24) കൃത്യമായി ചെക്കപ്പിന് വരേണ്ടതിന്റെ പ്രാധാന്യത്തെപ്പറ്റി അറിയാമോ?  
(അറിയാം, അറിയില്ല)

### Answer Key

1. Yes / No
2. Yes / No
3. Yes / No
4. Yes / No
5. Yes / No
6. Yes / No
7. Yes
8. No
9. Yes
10. Yes
11. Wash with soap water
12. Fever, redness/ haematoma and fluid draining from the site.
13. Yes
14. Transformer, electricity leaking applicances
15. C.T. Scan, US Scan
16. Below 5 Kg
17. Only extending the arms
18. Loose fitting clothes
19. Yes
20. Yes/No
21. On the same side of pacemaker insertion site.
22. Yes
23. Pulse rate above 60/mt
24. Yes

## HEALTH EDUCATION

1) Assess your wound daily, and keep the incision clean and dry until it heals. Report any fever, redness, haematoma, drainage from the incision site, warmth, discolouration to the physician.

Avoid excessive pressure on the wound and the pulse generator. Avoid extensive "toying" with the pulse generator because this may cause pacemaker malfunction and local skin inflammation. Avoid tight clothing or belts.

2) Take your pulse for 1 full minute at the same time each day and record the rate in your pacemaker diary. Know the rate at which your pacemaker is set and know what rate changes to report to your physician. Report sensations of feeling your heart 'raung', beating irregularly, fatigue or dizziness. Report if there is difficulty breathing, dizziness, fainting, chest pain, weight gain and prolonged hiccupping. If you have any of these symptoms, check your pulse rate and call your physician.

3) Do not lift for more than 5-10 pounds for the first 6 weeks after PPI. Do not move your arms and shoulders vigorously for the first 6 weeks. Normal activities can be resumed (including sexual activity) in 6 weeks. Avoid activity that might damage the pulse generator such as playing football and firing a rifle with the butt end against the affected shoulder.

- 4) You may take baths or showers without concern of your pacemaker.
- 5) A diet low in fat and sugar, and high in fiber is recommended.
- 6) Know the indications of battery failure such as palpitation, fatigue, dizziness and reported these findings to your physician.

Avoid going towards strong electric and magnetic fields or radiation that can cause pacemaker problems.

You can operate safely most appliances and tools that are properly grounded and in good repair including microwave ovens, television, video recorders, radio, electric blankets, cars, electric type writers, copying machines, personal computers. Avoid being near large running motors (gas or electric) transformer, large industrial magnets.

Riding in a care is safe, but do not bring the pacemaker to within 6 to 12 inches of the distributor coil of a running engine.

An airport's metal detector can be triggered by the pacemaker's metal casing and the programming magnet. The metal detector itself does not harm the pacemaker.

Be aware that antitheft devices can cause temporary pacemaker malfunction. If symptoms such as palpitation, syncope develops, move away from the pacemaker.

If radiation therapy has been prescribed to the area in which the pulse generator was implanted, the pulse generator must be relocated.

At all times carry a pacemaker identity card (including programming information, pacemaker manufacturer, emergency phone number). Wear a medical alert bracelet.

Instruct to take all medications at the prescribed time and discuss the purpose, dose, schedule and side effects.

Regular follow up - 6 weeks after PPI, then every 6 months to re-evaluate pacemaker function.

പേസ്‌മേക്കർ വച്ചതിനുശേഷം രോഗികൾ ശ്രദ്ധിക്കേണ്ട കാര്യങ്ങൾ :

മുറിവ് അണുബാധയുണ്ടാകാതെ ശ്രദ്ധിക്കുക

മുറിവ് ഉണ്ടാകുന്നതുവരെ ദിവസവും പരിശോധിച്ച് വൃത്തിയാക്കി സൂക്ഷിക്കണം. ഒരാഴ്ചക്കാലം പേസ്‌മേക്കർ വച്ചിരിക്കുന്ന മുറിവ് വെള്ളം നനയാതെ സൂക്ഷിക്കണം. അതിനുശേഷം സോപ്പുവെള്ളം കൊണ്ട് കഴുകാം. എണ്ണയോ, പൗഡറോ പുരട്ടാൻ പാടില്ല. പനി ഉണ്ടാവുകയോ മുറിവ് നീര് വയ്ക്കുകയോ മുറിവിൽ നിന്ന് വെള്ളം വരികയോ ചെയ്താൽ ഉടനെ ഡോക്ടറേ കാണേണ്ടതാണ്.

പേസ്‌മേക്കർ വച്ചിരിക്കുന്ന ഭാഗത്ത് കൂടുതൽ സമ്മർദ്ദം ചെലുത്താൻ പാടില്ല. ഇറുകിയ വസ്ത്രധാരണം ഒഴിവാക്കണം. അതുപോലെതന്നെ ആ ഭാഗത്ത് ആവശ്യമില്ലാതെ തൊടുവാൻ പാടില്ല. ഇത് പേസ്‌മേക്കറിന്റെ തെറ്റായ പ്രവർത്തനത്തിന് കാരണമാകുന്നു.

പേസ്‌മേക്കർ വച്ചിരിക്കുന്ന ഭാഗത്തുള്ള കൈ പൊക്കുകയോ പിന്നോട്ട് വളക്കുകയോ ചെയ്യരുത്. ആദ്യത്തെ 6 ആഴ്ച കൈ കൂടുതൽ അനക്കുവാൻ പാടില്ല. 5 കിലോയിൽ കുറവുള്ള ഭാരം മാത്രമേ എടുക്കുവാൻ പാടുള്ളൂ. 6 ആഴ്ച കഴിഞ്ഞതിനുശേഷം സാധാരണ പ്രവർത്തിയിലേക്ക് വരാവുന്നതാണ്. എന്നാൽ ഫുട്ബോൾ കളിക്കുക തുടങ്ങിയ പ്രവർത്തികൾ ചെയ്യുവാൻ പാടില്ല.

നാഡി ഇടിപ്പ്

നാഡി ഇടിപ്പ് എല്ലാ ദിവസവും ഒരേ സമയം തന്നെ എണ്ണി നോക്കണം. ഒരു മിനിറ്റിൽ 60 ൽ താഴെയാണ് നാഡിയിടിപ്പ് എങ്കിൽ ഡോക്ടറെ വിവരം അറിയിക്കേണ്ടതാണ്. നെഞ്ചിടിപ്പ്, തലകറക്കം, ശ്വാസം മുട്ടൽ, നെഞ്ച് വേദന എന്നിവ ഉണ്ടെങ്കിൽ നാഡി ഇടിപ്പ് നോക്കിയതിനുശേഷം ഡോക്ടറെ അറിയിക്കേണ്ടതാണ്.

മൊബൈൽ ഫോൺ ഉപയോഗിക്കുമ്പോൾ പേസ്മേക്കർ വച്ചിരിക്കുന്നതിന്റെ എതിർ വശത്ത് കൈയിൽവെച്ച് സംസാരിക്കണം. മൊബൈൽ ഫോൺ പേസ്മേക്കർ വച്ചിരിക്കുന്നതിന് അടുത്തുള്ള പോക്കറ്റിൽ സൂക്ഷിക്കരുത്.

ക്ഷേണക്രമീകരണം

കൊഴുപ്പില്ലാത്ത എണ്ണ കുറഞ്ഞ നാര് ധാരാളം ഉള്ള ആഹാരം കഴിക്കാം.

സുരക്ഷാ കാര്യങ്ങൾ

വീട്ടിലുള്ള ഇലക്ട്രിക് ഉപകരണങ്ങളിൽ വൈദ്യുതി ലീക്ക് ഉണ്ടെങ്കിൽ അത് കൈകാര്യം ചെയ്യുവാൻ പാടില്ല. ട്രാൻസ്ഫോമർ മുതലായ കൂടുതൽ വൈദ്യുതി പ്രവഹിക്കുന്ന ഇടങ്ങളിൽ നിൽക്കാതിരിക്കുക.

കാന്തശക്തി ഉപയോഗിച്ചുള്ള പരിശോധനാ സ്ഥലങ്ങളിൽ (വിമാനതാവളം, വലിയ ഷോപ്പിംഗ് സെന്ററുകൾ) ചെല്ലുമ്പോൾ നേരത്തെ

തന്നെ നിങ്ങൾ പേസ്മേക്കർ വച്ചിരിക്കുന്ന വിവരം അവരെ അറിയിക്കുക.  
പേസ്മേക്കർ വച്ചിരിക്കുന്നവർ എം.ആർ.ഐ. സ്കാനിംഗിന്  
വിധേയനാവരുത്.

റേഡിയേഷൻ ചികിത്സയ്ക്ക് വിധേയനാവുന്നതിന് മുമ്പ്  
കാർഡിയോളജിസ്റ്റിന്റെ ഉപദേശം തേടുക.

പേസ്മേക്കർ വച്ചിരിക്കുന്നു എന്ന കാർഡ് എപ്പോഴും കൈയിൽ  
ഉണ്ടായിരിക്കേണ്ടതാണ്. ഡോക്ടർ നിർദ്ദേശിച്ച മരുന്നുകൾ കൃത്യമായി  
കഴിക്കേണ്ടതാണ്.

നെഞ്ചിടിപ്പ്, തലക്കറക്കം, നെഞ്ച്വേദന, ശ്വാസംമുട്ടൽ, നാഡിയിടിപ്പ്  
60 ൽ താഴെ എന്നിവ പേസ്മേക്കറിന്റെ മോശമായ പ്രവർത്തനത്തിന്റെ  
ലക്ഷണങ്ങളാണ് അതുകൊണ്ട് ഇത് കണ്ടാൽ ഉടൻ തന്നെ ഡോക്ടറെ  
സമീപിക്കേണ്ടതാണ്.

### ചെക്കപ്പ്

പേസ്മേക്കർ വച്ചതിനുശേഷം 6 ആഴ്ചക്ക് ശേഷം പേസ്മേക്കറിന്റെ  
പ്രവർത്തനം വിലയിരുത്തുന്നതിന് വേണ്ടി പരിശോധനയ്ക്ക് വരേണ്ടതാണ്.  
അതിനുശേഷം ഓരോ 6 മാസം കൂടുമ്പോഴും പരിശോധനയ്ക്ക് വന്ന്  
പേസ്മേക്കറിന്റെ പ്രവർത്തനം വിലയിരുത്തി ഡോക്ടറുടെ നിർദ്ദേശം  
തേടേണ്ടതാണ്.