

بِسْمِ اللَّهِ الرَّحْمَنِ الرَّحِيمِ

**Republic of Sudan**  
**Ministry of higher education and scientific research**  
**Shandi University**  
**Faculty of graduate studies and scientific research**

**Title:**

**Applicability of discharge program for patient post pacemaker implantation among intensive care unit - in Sudan Cardiac Center**

This submitted for fulfillment for the requirement for the degree of master in critical care nursing.

**By:**

**MATHANI BOUSHRA NOOR ELDEEN SALMAN**

*Bsc, Nile College(2015)*

**Supervisor:**

**Dr: higazi awad**

**SHANDI UNIVERSITY**

**2018**

# Dedication

*Dedication this is dedicated to my best friends, who have always been a constant source of support and encouragement during the challenges of my whole college life.*

*Also to my brothers and my sisters whom I am truly grateful for having in my life, This work is also dedicated to my parents, Freida and boushra, who have always loved me unconditionally and whose good examples have taught me to work hard for the things that I aspire to achieve.*

# Acknowledgment

*All my thanks are in the most gracious and the most merciful*

*In this instance, I extended my thanks, deep sincere gratitude and honest appreciation to my supervise*

*Dr: higazi awed*

*For his kindness, good guidance, valuable direction and generous advice for participation in this study*

*My thanks are also extended to my colleagues in the critical and emergency unit, faculty of post-graduation nursing science, university of shandi*

*All special thanks to friend omer algady never left my side throughout the process and he gave me technological support.*

*I feel indebted to many people who participated and helped me in this work.*

## Abstract

### **Background:**

A cardiac pacemaker is an electronic device that delivers direct stimulation to the heart, the purpose of the pacemaker is to initiate and maintain the heart rate when the heart's natural pacemaker is unable to do so.

**Objectives:** The aim of this study is; the first is to assess the patient discharge instructions post pacemaker implantation on nursing staff in Sudan Cardiac Center

**Methods:** Descriptive study cross sectional hospital based study.

**Tools of the study:** were utilized for data collection by using interview questionnaire, Developed by University Hospital of Columbia and Cornell: New York.

**Result:** the present study revealed that there was a statistically significant difference in determine the applicability of post pacemaker discharge instructions among hospital nursing staff were good in applied the instruction.

**Conclusion:** there have good knowledge to the applicability of post pacemaker discharge instructions among hospital nursing staff.

### **Recommendation:**

The study recommended the following:

-The nurses need refresh course to update the knowledge about post pacemaker discharge instructions.

-continue researches finding to improve nurses applicability of post pacemaker discharge instructions -continue training course to educate about pain management and enhance nurses education level by periodic training.

## Tables of content

Subject	Page number
Dedication	I
Acknowledgment	II
Abstract	III
Tables of content	IV
List of Tables	VI
List of figure	VII
List of abbreviations	VIII
<b>Chapter one</b>	
<b>Introduction</b>	
Introduction	1
<b>Chapter tow</b>	
<b>Literature review</b>	
Literature review	11
<b>Chapter three</b>	
<b>Methodology</b>	
Methodology	11
<b>Chapter four</b>	

<b>Result</b>	
Result	14
<b>Chapter five</b>	
<b>Discussion and Conclusion&amp; Recommendation</b>	
Discussion	23
Conclusion	28
Recommendation	28
<b>Chapter six</b>	
References.	29
Annex.	30

## List of Tables

No	The table	page
Table 1	distribution of Nurse's according to socio-demographic data	14
Table 2	Respondents experience the applicability of pace maker instructions according to Patient's activity	16
Table 3	Respondents experience the applicability of pace maker instructions according to Patients' eating habit after discharge	17
Table 4	study group experience about applicability of pace maker instructions	18
Table 5	Respondents experience the applicability of pace maker instructions according to Patients' need to know about pacemaker	19
Table 6	Respondents experience the applicability of pace maker instructions according to Patients' need to know about Warning signs of possible heart problem	20
Table 7	correlation between Promote healing, gentle small movements of the affected arm and age group	21
Table 8	correlation between age group and Avoid activities lead to rough contact with your pacemaker	21
Table 9	Correlation between study group Years of experience, and Level of education with their knowledge regarding Walking ways to enhance your recovery.	22

### List of figure

<b>No</b>	<b>The figure</b>	<b>page</b>
Figure 1	distribution of nurses according to Family history of heart disease	15



<b>List of abbreviation</b>	
A.V	Atrioventricular
SCC	Sudan Cardiac center
ID	Identification Data
ER	Emergency Room
ICU	Intensive Care Unit
CCU	Coronary Care Unit
OR	Operation Room
ICD	Implantable Cardioverter Defibrillator

*Chapter one*

**INTRODUCTION**

## **Chapter one**

### **Introduction**

A cardiac pacemaker is an electronic device that delivers direct stimulation to the heart, with the purpose of initiating and maintaining the heart rate when the heart's natural pacemaker is unable to do so (Nettina, 2010). It is an artificial device that electrically stimulates myocardium to depolarize, to begin a contraction, when the heart's natural pacemaker does not function properly. This device may be temporary or permanent, depending on the patient's condition.[1]

It is indicated for conditions that result in failure of the heart to initiate or conduct an intrinsic electrical impulse at a rate adequate to maintain perfusion. Pacemakers are necessary when dysrhythmias or conduction defects compromise the electrical system and the hemodynamic response of the heart .[3]

Today, pacemakers are used to manage symptomatic bradycardia but rising cost of technology that saves life has been out of reach for many poor patients leading to morbidity and death. Each year 1-2 million individuals worldwide die due to a lack of access to pacemaker. (Mccunalty&Valento, 2012).

There are currently more than 3 million patients worldwide with implanted permanent pacemaker. In Europe, Japan and USA, the implantation rate is almost 300-1000 per million. In United States, the prevalence of third-degree AV block is 0.02%. Worldwide, the prevalence of third-degree AV block is 0.04%. The incidence of AV conduction abnormalities increases with advancing age. .[7]

Modern pacemakers can be externally programmed allowing pacing modes to be optimized for individual patients. .[5]

A pacemaker insertion is the implantation of a small electronic device that is usually placed in the chest (just below the collarbone) to help

regulate slow electrical problems with the heart(Reference). A pacemaker may be recommended to ensure that the heartbeat does not slow to a dangerously low rate .[4]

A pacemaker may be needed when problems occur with the electrical conduction system of the heart (Reference). When the timing of the electrical stimulation of the heart to the heart muscle and the subsequent response of the heart's pumping chambers is altered, a pacemaker may help .[2]

After a pacemaker insertion, regularly scheduled appointments will be made to ensure the pacemaker is functioning properly.

The doctor uses a special computer, called a programmer, to review the pacemaker's activity and adjust the settings when needed.[17]).

All patient on discharge after pacemaker implantation surgery need fully care and attention until his/her recover health and may continue follow up for life according to situation.[18]

According to the American Heart Association, about 5 million Americans are diagnosed with heart disease each year. Heart disease kills 7.1 million people globally each year.[4]

According to European society of cardiology by 2011, heart failure was the second most prevalent predisposing condition; present in 27.6% of North Americans. Its prevalence ranged from 17.7% in India to 64% in Africa .[13]

### **Statement of the Problem**

This study will seek to determine the applicability of post pacemaker discharge instructions among hospital nursing staff of Sudan Cardiac Center. Specifically, it seeks to answer the following:

1. What is the demographic profile of the respondents in terms of?
  - Age
  - Gender

- Level of education
  - Years of experiences
  - Their family history of cardiac diseases.
2. To what extent do the respondents experience the applicability of pace maker instructions in term of?
- Patient's activity
  - Patients' eating habit after discharge
  - Dressing of surgery wound
  - Fallow up process
3. Is there a significant relationship between the demographic profiles of the respondents on applicability of the instructions after discharge?

### **Significance of the Study**

This is significantly beneficial to the following; the result of this study will give the nurse respondents valuable information on the pacemaker and its care. .[12]

It will also help them in coping to change in their attitudes toward their patients. This will benefit the family and the community for they understand the heart diseases, especially the pacemaker care.

Likewise the health care professionals will enhance their capacity to deal with pacemaker. .[16]

**General Objective:**

To evaluate applicability of nurses for discharge program for patient post pacemaker implantation.[17].

**Specific Objective:**

- To assess the patient discharge instructions post pacemaker implantation on nursing staff in SCC.
- To determine the post pacemaker instructions guided by international instructions. .[18]

*Chapter tow*

LITERATURE REVIEW

## **Chapter tow**

### **Literature review**

A cardiac pacemaker is an electronic device that delivers direct stimulation to the heart, with the purpose of initiating and maintaining the heart rate when the heart's natural pacemaker is unable to do so.[5].

It is an artificial device that electrically stimulates myocardium to depolarize, to begin a contraction, when the heart's natural pacemaker does not function properly. This device may be temporary or permanent, depending on the patient's condition. .[2]

It is indicated for conditions that result in failure of the heart to initiate or conduct an intrinsic electrical impulse at a rate adequate to maintain perfusion. Pacemakers are necessary when dysrhythmias or conduction defects compromise the electrical system and the hemodynamic response of the heart. .[3]

Today, pacemakers are used to manage symptomatic bradycardia but rising cost of technology that saves life has been out of reach for many poor patients leading to morbidity and death. Each year 1-2 million individuals worldwide die due to a lack of access to pacemaker. .[8]

There are currently more than 3 million patients worldwide with implanted permanent pacemaker. In Europe, Japan and USA, the implantation rate is almost 300-1000 per million. In United States, the prevalence of third-degree AV block is 0.02%. Worldwide, the prevalence of third-degree AV block is 0.04%. The incidence of AV conduction abnormalities increases with advancing age. Modern pacemakers can be externally programmed allowing pacing modes to be optimized for individual patients.

Studies have shown that non-compliance causes 125,000 deaths



annually in the USA, leads to 10 to 25% of hospital and nursing home admissions and is becoming an epidemic **Koop( 2007)**. International Management of permanent pacemakers is a difficult challenge for both cardiology and infectious diseases specialists. .[8]

(Reported incidence of complication rates of permanent pacemakers range from 0.19% to 13.9% and to 0.8% for permanent pacemakers, respectively).Patients with permanent pacemakers can present with a pulse-generator pocket infection or blood-stream infection. Permanent pacemaker can greatly improve quality of life and for some people it can be lifesaving and preventing death. Optimal outcome after permanent pacemaker insertion can only be obtained if patients are supported in compliance to a lifelong with permanent pacemaker.

Patients' not have any knowledge about permanent pacemaker is one of the most serious problems facing healthcare today.

- A pacemaker may be needed when problems occur with the electrical conduction system of the heart. When the timing of the electrical stimulation of the heart to the heart muscle and the subsequent response of the heart's pumping chambers is altered, a pacemaker may help.
- After a pacemaker insertion, regularly scheduled appointments will be made to ensure the pacemaker is functioning properly. The doctor uses a special computer, called a programmer, to review the pacemaker's activity and adjust the settings when needed. .[17]
- All patient on discharge after pacemaker implantation surgery need fully care and attention until his/her recover health and may continue follow up for life according to situation.
- According to the American Heart Association, about 5 million Americans are diagnosed with heart disease each year. Heart disease

- kills 7.1 million people globally each year. .[18]
- According to European society of cardiology by 2011, heart failure was the second most prevalent predisposing condition; present in 27.6% of North Americans. Its prevalence ranged from 17.7% in India to 64% in Africa. .[16]
- **Types of Pacemakers**
- There are two primary types of pacemakers: a standard pacemaker that triggers the chambers of the heart, and an internal defibrillator / pacemaker combination known as a cardioverter defibrillator.

### **Why do I need a pacemaker?**

- an abnormally slow heartbeat (bradycardia)
- an abnormally fast heartbeat (tachycardia)
- heart block – where your heart beats irregularly because the electrical signals that control your heartbeat aren't transmitted properly
- cardiac arrest – when a problem with the heart's electrical signals cause the heart to stop beating altogether .[15]

### **The Risks of Pacemaker Surgery**

- Nerve damage at the incision site
- Damage to the tissues or blood vessels around the heart or the incision site
- Pneumothorax (collapsed lung)
- Bruising at the site of placement (this is an expected effect of surgery)
- Faulty pacemaker that does not function as intended after the surgery (very rare)
- Faulty lead wires that connect the pacemaker to the heart (very rare)

- Lead wires that become dislodged after surgery due to activity or poor placement
- Infection in the incision
- The pacemaker may have to be replaced in the future.[15]

**What are the complications associated with a pacemaker?**

- an allergic reaction to anesthesia
- bleeding
- bruising
- damaged nerves or blood vessels
- an infection at the site of the incision
- a collapsed lung, which is rare
- a punctured heart, which is also rare
- You may go home that evening, or you could stay in the hospital overnight. Before you go home, your doctor will make sure the pacemaker is programmed properly for your heart's needs. Your doctor can reprogram the device as needed at follow-up appointments.
- Over the next month, you should avoid rigorous exercise and heavy lifting. You may also need to take over-the-counter medications for any discomfort. Ask your doctors what pain relievers are safest for you.
- Every few months, you'll hook your pacemaker up to a phone line using special equipment provided by your doctor. It allows your doctor to receive information from your pacemaker without the need for an office visit. .[14]

## **What happens after pacemaker surgery?**

Modern pacemakers are not as sensitive to electrical devices as the old ones, but certain devices could cause interference with your pacemaker. For example, you should avoid:

- keeping a cell phone or MP3 player in the pocket over your pacemaker
- standing for too long near certain appliances, such as microwaves
- long exposures to metal detectors
- high-voltage transformers
- Avoid activities that involve heavy lifting or rough contact to give your lead(s) time to firmly attach to your heart tissue and allow your incision time to heal. .[13]
- Call your doctor if you have any swelling, redness or discharge around your incision, your heart rate drops below the minimum set for your pacemaker, or you develop a fever that does not go away in two or three days.
- Carry your Medical Device ID Card with you at all times
- Tell your other doctors, dentists, and emergency personnel that you have an implanted device and show them you're Medical Device ID Card.
- Walk, exercise, and bathe according to your doctor's instructions.
- Don't wear tight clothing that could irritate the skin over your device.
- Avoid rubbing your device or the surrounding chest area.
- Ask your doctor if it is safe for you to participate in activities that could endanger yourself or others if you lose consciousness, such as driving, swimming alone or climbing a ladder. .[11]
- Continue taking medications as instructed by your doctor.

*Chapter three*

**METHODOLOGY**

## **Chapter three**

### **Methodology**

#### **Study design:**

A descriptive survey method of quantitative approach, this method enables the researcher to survey the responses of the respondents using the Pacemaker/Implantable Cardio defibrillator Discharge instructions Tool Developed by University Hospital of Columbia and Cornell: New York. .[10]

#### **Study Area:**

Sudan Cardiac Center it is Governmental and military hospital provides medical and surgical care to heart patient from all over the country. It is established in 2002 , located in arkaweit west African street, from south elbalabil street , east nour eleyoon hospital and from north Aljazeera Sudanese Jordan bank the center includes (ER, CCU,CATHLAB,ICU,OR AND WARD).

Sudan Cardiac Center is only institute in Sudan witch fully dedicated to cardiovascular disease from the time of it is inception in the year 2002 and until now, it has strived to provide state of the art patient care and treatment in addition to training of doctors, nurses, and technologist. .[11]

#### **Study period:**

This Study was conducted in period from October 2017 to April 2018.

#### **Study population:**

The population of this study was the nursing staff working in Sudan Cardiac Center during Study period, total number was (60).

## **Study Variable:**

### **a. Demographic variables:**

- Nurse's age
- Nurse's gender
- Nurse's level of education
- Nurse's years of experience

### **b. Applicability of post pacemaker discharge instructions by nurses.**

## **Sampling and sample size**

### Sampling technique

The sample in this research study was drawn using a total coverage sample size (purposive sampling design). [13]

### Sample size

All nurses working in Sudan Cardiac Center were (90). 60 of them agree and 30 was refused to participate and annual leave or not available during study period.

## **Data collection process:**

The researcher prepared two part questionnaires. The questionnaire includes the demographic profile of the respondents in terms of age, gender, level of education, years of experience and nurses' family history of heart disease in the first part. The second part was the actual questions about the post discharge instructions should be delivered by nurses to the patients; these instructions were used in New York

Hospital. The research instrument was subjected for validation. The pilot tested questionnaire was validated by an expert in their own field. The questionnaires were formulated after reading various literatures. .[18]

### **Data technique:**

The data obtained in the survey questionnaire was tabulated & organized according to categories. Because the study was descriptive in nature, the researchers used tables to show the frequency of variables for analysis & interpretation.

Accomplished questionnaires were retrieved right away & subjected for proper analysis

### **Data Analysis**

Findings are presented with the corresponding tables to provide clarity on data presentation and analysis also p.value used.

### **Ethical considerations:**

- Ethical approval from University Of Shandi.
- Ethical approval from scientific research board in The Ministry of Health.
- Permission from hospital will take from hospital director.
- Verbal consent obtained from all participants.



## *Chapter four*

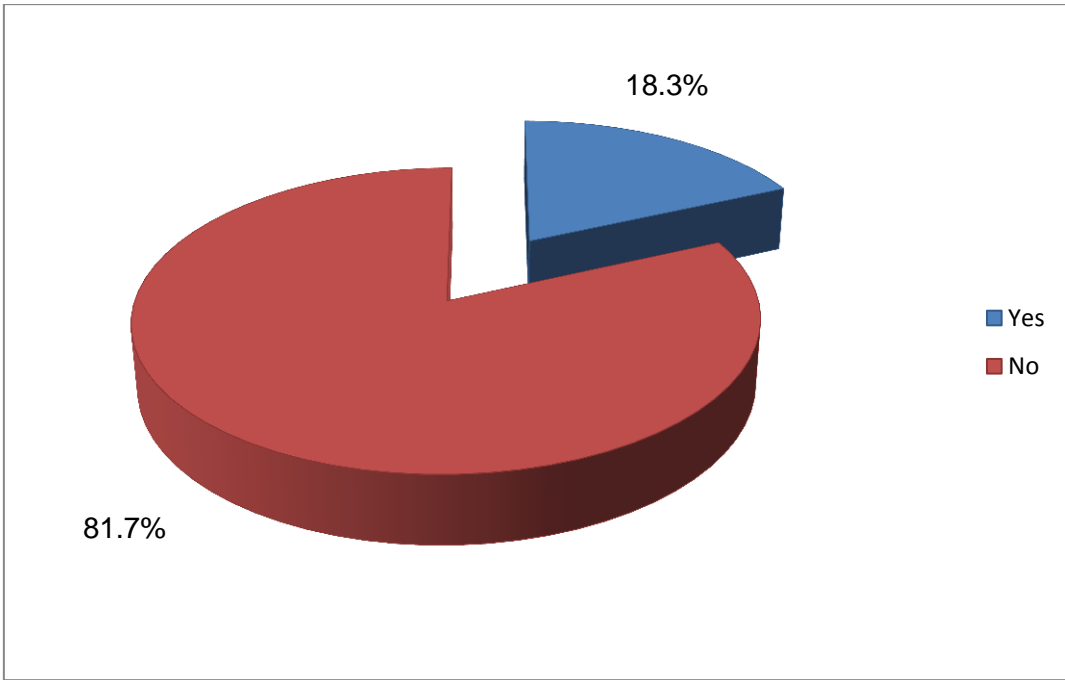
# **RESULT**

## Chapter four

### Result

**Table (4-1)** distribution of Nurse's according to socio-demographic data: (n: 60)

<b>age group</b>		
<b>Variable</b>	<b>Frequency</b>	<b>Percentage (%)</b>
18 – 22 years	14	23.3
23 – 27 years	41	68.3
28 – 32 years	4	6.7
More than 32 years	1	1.7
<b>education level</b>		
Diploma degree	4	6.7
Bachelor degree	50	83.3
Master degree	6	10.0
<b>years of experience</b>		
1–5 years	52	86.7
6 –10 years	6	10.0
More than 15 years	2	3.3



**Figure (4-1)** distribution of nurses according to Family history of heart disease N=60

**Table (4-2)** Respondents experience the applicability of pace maker instructions according to Patient’s activity N=60

Variable	Applicable		Not Applicable	
	Frequency	Percentage (%)	Frequency	Percentage (%)
Plan to relax your first day at home	54	90.0	6	10.0
Promote healing, gentle small movements of the affected arm	52	86.7	8	13.3
Not lift affected arm above your head for 1 month	46	76.7	14	23.3
Walking ways to enhance your recovery	47	78.3	13	21.7
Avoid activities lead to rough contact with your pacemaker	46	76.7	14	23.3

**Table (4-3)** Respondents experience the applicability of pace maker instructions according to Patients’ eating habit after discharge

N=60

Variables	Applicable		Not Applicable	
	Frequency	Percentage (%)	Frequency	Percentage (%)
Eat a “heart-healthy” diet	53	88.3	7	11.7
Speak with a registered dietitian	42	70.0	18	30.0

**Table (4-4)** study group experience about applicability of pace maker instructions N=60

Variables	Applicable		Not Applicable	
	Frequency	Percentage (%)	Frequency	Percentage (%)
<b>Care of dressing during showering times</b>				
Keep the dressing from the hospital until your follow-up appointment	55	91.7	5	8.3
Completely dry to allow for healing of the incision	52	86.7	8	13.3
Fully cover your dressing with plastic wrap to keep it dry	50	83.3	10	16.7
<b>follow up process</b>				
Make an appointment to be checked within 1 week in the Clinic	48	80.0	12	20.0
See your own Cardiologist within 2-weeks of discharge	47	78.3	13	21.7
<b>Driving inquires</b>				
Do not drive until your 1-week follow-up appointment	49	81.7	11	18.3
Discuss driving with your cardiologist	49	81.7	11	18.3
<b>Discharged on the medication</b>	58	96.7	2	3.3

**Table (4-5)** Respondents experience the applicability of pace maker instructions according to Patients’ need to know about pacemaker  
N=60

Variables	Applicable		Not Applicable	
	Frequency	Percentage (%)	Frequency	Percentage (%)
Do not carry a cellular phone in a pocket or on a belt within six inches of the pacer	49	81.7	11	18.3
Hold the cell phone on the opposite ear as the ICD	44	73.3	16	26.7
Do not walk through airport security systems	41	68.3	19	31.7
Keep pacer/ICD ID card at all times and ask security to clear	45	75.0	15	25.0
Avoid passing through metal detectors	44	73.3	16	26.7
Hold hand-held electrical devices at least six inches away from the ICD	43	71.7	17	28.3
Do not touch the spark plug or distributor on running car or lawn mower – turn	22	36.7	63.3	36.7
Avoid gas-powered appliances	43	71.7	17	28.3
Avoid holding magnets near your ICD	45	75.0	15	25.5

**Table (4-6)** Respondents experience the applicability of pace maker instructions according to Patients' need to know about Warning signs of possible heart problems N=60

Variables	Applicable		Not Applicable	
	Frequency	Percentage (%)	Frequency	Percentage (%)
Pain in chest or shoulder that radiates or is accompanied by sweating	56	93.3	4	6.7
A fever of 100.5°F or greater, chills	52	86.7	8	13.3
Palpitations in your chest or shortness of breath	55	91.7	5	8.3
Bruising or bleeding for no reason	55	91.7	5	8.3
Swelling, drainage, redness or bleeding at pacemaker/ICD insertion site	55	91.7	5	8.3



**Table (4-7):** correlation between age group and Promote healing, gentle small movements of the affected arm **N=60**

<b>Variables</b>	<b>Promote healing, gentle small movements of the affected arm</b>		<b><i>P-value</i></b>
	<b>Applicable</b>	<b>Not Applicable</b>	
<b>Age group</b>			
18 – 22 years	14 (23.3%)	0 (0.0%)	
23 – 27 years	34 (56.7%)	7 (11.7%)	0.012
28 – 32 years	4 (6.7%)	0 (0.0%)	
more than 32 years	0 (0.0%)	1 (1.7%)	

**Table (4-8):** correlation between age group and Avoid activities lead to rough contact with your pacemaker **N=60**

<b>Variables</b>	<b>Avoid activities lead to rough contact with your pacemaker</b>		<b><i>P-value</i></b>
	<b>Applicable</b>	<b>Not Applicable</b>	
<b>Age group</b>			
18 – 22 years	12 (20.0%)	2 (3.3%)	
23 – 27 years	30 (50.0%)	11 (18.3%)	0.046
28 – 32 years	3 (5.0%)	1 (1.7%)	
more than 32 years	1 (1.7%)	0 (0.0%)	

**Table (4-9):** correlation between study group Years of experience, and Level of education with their knowledge regarding Walking ways to enhance your recovery **N=60**

<b>Variables</b>	<b>Walking ways to enhance your recovery</b>		<b><i>P-value</i></b>
	<b>Applicable</b>	<b>Not Applicable</b>	
<b>Age group</b>			
18 – 22 years	13 (21.7%)	1 (1.7%)	
23 – 27 years	29 (48.3%)	12 (20.0%)	0.211
28 – 32 years	4 (6.7%)	0 (0.0%)	
more than 32 years	1 (1.7%)	0 (0.0%)	
<b>Level of education</b>			
Diploma degree	2 (3.3%)	2 (3.3%)	
Bachelor degree	39 (65.0%)	11 (18.3%)	0.409
master degree	5 (8.3%)	1 (1.7%)	
<b>Years of experience</b>			
1 – 5 years	41 (68.3%)	11 (18.3%)	
6 – 10 years	3 (5.0%)	3 (5.0%)	0.207
more than 15 years	2 (3.3%)	0 (0.0%)	

*Chapter five*

**DISCUSSION**

## Chapter five

### Discussion

Permanent pacemaker can greatly improve quality of life and for some people it can be lifesaving and preventing death. Optimal outcome after permanent pacemaker insertion can only be obtained if patients are supported in compliance to a lifelong with permanent pacemaker. Timby and Smith (2010) Patients' not have any knowledge about permanent pacemaker is one of the most serious problems facing health care today .[18]

An education program was designed for patients with pacemaker to help them in adaptation to the new device and improving quality of life . patients with permanent pacemaker have changes in the body image, problem in psychosocial adaptation and problems in quality of life parameters.[17]

Therefore, the present study has been designed aiming to **first:** To assess the patient discharge instructions post pacemaker implantation on nursing staff in SCC. **Second:** To determine the post pacemaker instructions guided by international instructions. **Third:** to increase the awareness about how the pacemakers are working and the guidance to prevent them in case of dysfunction after discharge from the hospital.

The study hypothesized that, there will be improvement evaluate applicability of nurses for discharge program for patient post pacemaker implantation.

Discussion of the findings of this study will cover following the main areas

1. Demographic characteristics of nurses under study,
- 2- Comparison between the' Applicability and not applicability of discharge instructions program for patient post pacemaker

implantation, **3-Relationship** between socio demographic characteristics patients and applicability of program.

**Table (1):** the result showed that, more than half of the study sample aged between 23 to 27 years (68.3). More than Two third of the sample (83.3%) have Bachelor degree. And most of the study sample (86%) has experience years between (1–5 years).

This may be due to extra traveling of nurses advanced age outside to asking work. This Finding is agreement with that of Elsayed ( 2013) Who reported most of the study sample ages 40 to 50 years, this finding is consistent with what was reported by Hildick and Smith (2011) That, there have been significant increases in study sample.

As regard education level this result not agree with Elsayed( 2013) and Abd Elaziz (2007) who mention that the noticeable findings of the study was that, less than half of the nurses under study were diploma. This could be due to the low social standard for nurses attending low financial college. The researcher opinion is the education enhances the Awareness about diseases and increases the ability of recognition about everything related to treatment plan.

As regard years of experience that revealed that importance to be competence and practically full by trained more than 1 year. This result in agreement with the study of Elsayed (2013) and youssef (2014) Who report more than three quarters of the nurses under study had inadequate years of experience until 5 years that can be reduced applicability of discharge program post pacing patient .

**Figure (1):** Shows that, the study sample of (18.3%) had **Family history** of cardiac diseases, As regards having co-existing diseases the present study revealed that more than half of sample studied have

Family history of heart diseases common with permanent pacemaker, this result not agree with youssef (2014) who reported that the minorities of nurses have Family history heart diseases. and his result in agreement with the study of Elsayed (2013) which done in Ain shams hospital and included sample size 85 who showed that most of nurses have Family history cardiac diseases. .[16]

**Table (2):** The result show the applicability of pace maker instructions according to Patient's activity, that found the most instructions applied by nurses is Plan to relax your first day at home (90.0%)

**Table (3):** the result show the applicability of pace maker instructions according to Patients' eating habit after discharge; that found it is applied for Eat a "heart-healthy" diet about (88.3%) of study group, and Speak with a registered dietitian about (70.0%) of study group. That reveal to high understanding of nutritional importance regarding this group by nurse.

**Table (4):** the result show the study group experience about applicability of pace maker instructions about Care of dressing during showering times; that reveal of an instruction of Keep the dressing from the hospital until your follow-up appointment abut (91.7%) applied by the nurses; and Completely dry to allow for healing of the incision about (86.7%) applied by the nurses; and Fully cover your dressing with plastic wrap to keep it dry (83.3%) applied by the nurses As regard same table at the next issue the result show the study group experience about applicability of pace maker instructions about fallow up process by high applicable by the nurses regarding Make an appointment to be checked within 1 week in the Clinic about (80.0%) and See your own Cardiologist within 2-weeks of discharge about

(78.3%)..[14]

As regard same table at the next issue the result show the study group experience about applicability of pace maker instructions about Driving inquires by high applicable by the nurses regarding Do not drive until your 1-week follow-up appointment about (81.7%), and Discuss driving with your cardiologist about (81.7%), finally the result show the study group experience about applicability of pace maker instructions about Discharged on the medication with highly applicable by nurse about (96.7%).

**Table (5):** the result show Respondents experience the applicability of pace maker instructions according to Patients' need to know about pacemaker and precaution of some avoidance technique; that revealed some of instructions aren't applicable by the nurses such as Avoid gas-powered appliances about (28.3%), and avoid holding magnets near your ICD about (25.5%).That meaning of not availability of these issues in our country and misunderstanding of nurses by it.

**Table (6):** the result show Respondents experience the applicability of pace maker instructions according to Patients' need to know about Warning signs of possible heart problems that revealed applicable by the nurses regarding Pain in chest or shoulder about (93.3%); and A fever of 100.5°F or greater, chills about (86.7%), and Palpitations in your chest or shortness of breath about (91.7%), and Bruising or bleeding for no reason about (91.7%), and Swelling, drainage, redness or bleeding at pacemaker/ICD insertion site about (91.7%). That revealed adequate knowledge of signs and symptoms of heart problem by the nurses. .[13]

Concerning relationship between medical team and patient, it is obvious that, most of patients under the study reported that the nurse don't give them medical instructions they should follow and doctor never allow them enough time to ask questions. These could be due to the high flow rate of patients in military medical hospital so the nurses don't have enough time to give every patient complete medical instruction. This finding is in agreement with Marzouk (2009) who stated that, the nurses never give the patient's medical instructions should follow..[14]

On the same scope; Rubin (2005) concluded that, a healthy relationship is based on patients' trust in prescribers and empathy from the prescribers. Studies have found that, compliance is good when nurses are emotionally supportive, giving reassurance or respect, and treating patients as an equal partner.

Regarding patients' knowledge about device description and function, precautions for pacemaker, activity and follow up, the results of the present study showed that, the current study revealed that the level of knowledge regarding permanent pacemaker pre implementing of the educational program was unsatisfactory in most of patients while post program there were improvements with highly statistically significant differences baseline.

There was highly statistical significant relationship between study group age and their level of knowledge in promotion of healing ( $p$ -value=0.02), and their level of knowledge to avoid cross with pacemaker ( $p$ -value=0, 04) while there was no significance relationship between study group years of experience, level of education with their level of knowledge regarding walking ways to enhance recovery..[13]



**Conclusion:** the current study revealed that most of the study group good applicable of post pacemaker discharge instructions, this is significantly beneficial to the following; the result of this study will give the nurse respondents valuable information on the pacemaker and its care.

It will also help them in coping to change in their attitudes toward their patients. This will benefit the family and the community for they understand the heart diseases, especially the pacemaker care. Likewise the health care professionals will enhance their capacity to deal with pacemaker.

**Recommendation:**

-The nurses need refresh course to update the knowledge about post pacemaker discharge instructions.

-continue researches finding to improve nurses applicability of post pacemaker discharge instructions -continue training course to educate about pain management and enhance nurses education level by periodic training. .[9]

-provide education posters in emergency department about the scale and tools used of post pacemaker discharge instructions

## References:

1. Nettina, M.S. (2010): Manual of Nursing Practice, 9th ed., Wolters Kluwer / Lippincott Williams & Wilkins, London, pp. 353-360.
2. Karen, V.J. (2010): Medical Surgical Nursing, (4th) ed., Mosby Company, pp. 856-862.
3. Mccunality, A., Bebjamin, W., & Joanne, L. (2012): Medication Nonadherence: an unrecognized cardiovascular risk factors. Medscape General Medicine; 9(3): 58-65
4. Assadi, R. & Alange, R. (2011): Conduction System of the Heart, (2nd) ed, University of Nottingham, p.p371-372.
5. Stewart, A.; Jane, V.; & Sheehan, M. (2011): Permanent Pacemakers: The Nurse's Role in Patient Education and Follow-up Care, Journal of Cardiovascular Nursing, 5(3)
6. Retrieved from: [http://journals.lww.com/jcnjournal/Abstract/1991/04000/Permanent\\_pacemakers\\_The\\_nurse\\_s\\_role\\_in\\_patient.6.aspx](http://journals.lww.com/jcnjournal/Abstract/1991/04000/Permanent_pacemakers_The_nurse_s_role_in_patient.6.aspx)
7. Wilkoff BL, Auricchio A, Brugada J, et al. HRS/EHRA expert consensus on the monitoring of cardiovascular implantable electronic devices (CIEDs): description of techniques, indications, personnel, frequency and ethical considerations. <http://dx.doi.org/10.1016/j.hrthm.2008.04.13>. [PubMed]
8. Hayes J.J., Juknavorian R., Maloney J.D. North American Society of Pacing and Electrophysiology (NASPE) policy statement: the role(s) of the industry employed allied professional. Pacing Clin Electrophysiol. 2001;24: 398–399. [PubMed] Lazarus A
9. 8. Remote, wireless, ambulatory monitoring of implantable pacemakers, cardioverter defibrillators, and cardiac resynchronization therapy systems: a analysis of a worldwide database, Pacing and Clin Electrophysiol, 2007, vol .30(pg. S2-12)

- 10.9. Establishment of an in-service training center and a hot line contact in addition provision of pamphlets and simple booklet are recommended.
- 11.10. [Nagwa Mohamed Ahmed Mohamed and Zienab Abd El-Lateef Mohamed. Impact of Nursing Teaching Protocol on reduction of Complications for Patient with Permanent Artificial Pacemaker. *JAmSci*2014;10(11):122-123]. (ISSN: 1545-1003). 11. <http://www.jofamericanscience.org>. 17
- 13.12. North American Society of Pacing and Electrophysiology, Natick, Massachusetts 01760-2499, USA.
- 14.12. Lau C.P. Pacemaker troubleshooting and follow-up. In: Ellenbogen K. A., Kay G.N., Lau C.-P., Wilkiff B.L., editors. *Clinical Cardiac Pacing, Defibrillation and Resynchronization Therapy*. 3rd ed. Saunders Elsevier; Philadelphia: 2007.
- 15.13. Matuni E.L., Majors R.K., Kennedy J.R., Lebo G.R. A recommended protocol for pacemaker follow-up: analysis of 1705 implanted pacemakers. *Ann Thorac Surg*. 1977;24:62–67. [[PubMed](#)]
- 16.14. Furman S. Cardiac pacing and pacemakers VII. The pacemaker follow-up clinic. *Am Heart J*. 1977;94:795–804. [[PubMed](#)]
- 17.15. Fraser J.D., Gillis A.M., Irwine M.E., Canadian Working Group on Cardiac Pacing Guidelines for pacemaker follow-up in Canada: a consensus statement of the Canadian Working Group on Cardiac Pacing. *Can J Cardiol*. 2000;16:355–363. [[PubMed](#)]
- 18.16. Hayes D.L., Naccarelli G.V., Furman S., North American Society of Pacing and Electrophysiology NASPE training requirements for cardiac implantable electronic devices: selection, implantation, and follow-up. *Pacing Clin Electrophysiol*. 2003;26(7 Pt 1):1556–1562. [[PubMed](#)]

*Chapter six*

**APPENDIX**

## Chapter six

### Appendix

#### Questionnaire

**- Nurse's age:**

18 – 22 years ( ) 23 – 27 years ( ) 28 – 32 years ( ) more than 32 years

**- Nurse's level of education:**

Diploma degree ( ) Bachelor degree ( ) master degree ( ) PhD degree ( )

**- Nurse's years of experience:**

1 – 5 years ( ) 6 – 10 years ( ) 11 – 15 years ( ) more than 15 years ( )

**- Family history of heart disease:**

Yes ( ) no ( )

<b>Instructions by nurse</b>	<b>Applicable</b>	<b>Not Applicable</b>
<b>What should my activity level be?</b>		
- Plan to relax your first day at home. It is normal to feel worn-out.		
- To promote healing, gentle small movements of the affected arm should be performed for one month. You should not do any aggressive stretching or heavy lifting (over 10 lbs.) during this time as this could affect healing of your incision		
- Do not lift affected arm above your head for 1 month		
- It is common to feel a bit tired or sore after this procedure, so increase your activity level slowly. Walking is one of the easiest ways to enhance your recovery		
- Discuss your exercise plans with your doctor first – he/she may give you special exercise instructions. Avoid activities that could lead to rough contact with your pacemaker or ICD insertion site.		
<b>What should I eat?</b>		
- It is very important for you to eat a “heart-healthy” diet. A diet low in fat, cholesterol, and sodium can help you lower your cholesterol level, blood pressure and weight		
- If you have any further questions about the cardiac diet or would like to speak with a registered dietitian, feel		

free to call (hospital number)		
<b>How do I take care of my dressing and when can I shower ?</b>		
- Keep the dressing from the hospital on your incision until your follow-up appointment one week after discharge.		
- This dressing must be completely dry to allow for healing of the incision. It is recommended that you take sponge baths until your follow-up appointment.		
- If you must shower, fully cover your dressing with plastic wrap to keep it dry.		
<b>With whom do I follow-up?</b>		
- Make an appointment to be checked within 1 week in the Clinic, by calling (hospital number)		
- Be sure to see your own Cardiologist within 2-weeks of discharge. Bring a copy of your discharge instructions and your medications with you to this appointment. Your cardiologist will manage your care long term.		
<b>When can I drive?</b>		
- Do not drive until your 1-week follow-up appointment.		
- At this appointment, discuss driving with your cardiologist. He/she will give you a recommendation		

based upon your medical history.		
<b>What if I am discharged on the medication?</b>		
- Providing a full information about medications, dose, time, side effects, ...etc.		
<b>What else do I need to know about my pacemaker?</b>		
- Do not carry a cellular phone in a pocket or on a belt within six inches of the pacer or ICD as this can affect the operation of the unit.		
- Hold the cell phone on the opposite ear as the ICD or pacemaker insertion site.		
- Do not walk through airport security systems as these devices can detect the metal in your pacemaker or ICD and possibly alarm.		
- Keep your pacer/ICD ID card with you at all times and ask security to clear you with a hand search only. Do not let security use a hand-held wand.		
- Avoid passing through metal detectors (for example in shopping malls and schools). If you must pass through, walk quickly through. These detectors can interfere with the pacer and ICD function.		
- Hold hand-held electrical devices at least six inches away from the ICD to reduce chance of interference.		
- Do not touch the spark plug or distributor on running car		



or lawn mower – turn engine off first		
- Avoid gas-powered appliances or tools such as chain saws that can do harm if you become dizzy or receive a shock while operating.		
Avoid holding magnets near your ICD.		
<b>Warning signs of possible heart problems</b>		
- Pain or pressure in your chest or shoulder that radiates or is accompanied by sweating, nausea or vomiting.		
- A fever of 100.5°F or greater, chills or sweating. Take your temperature nightly until your first follow-up appointment.		
- Palpitations in your chest or shortness of breath.		
- Bruising or bleeding for no reason.		
- Swelling, drainage, redness or bleeding at pacemaker/ ICD insertion site.		

**From Columbia University:**

Copyright NewYork-Presbyterian 2006©. All rights reserved

G:\groups\prac\vp\pmicd2 12/00 rl 7.5, reviewed 3/02, reviewed 8/06