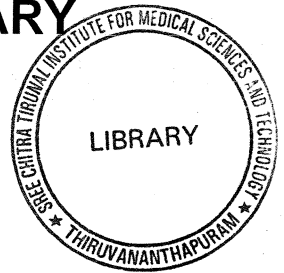


A STUDY TO ASSESS THE EFFECT OF INDIVIDUALISED INSTRUCTION ABOUT HOSPITALISATION FOR PATIENTS UNDERGOING CORONARY ANGIOGRAM / ANGIOPLASTY

PROJECT REPORT

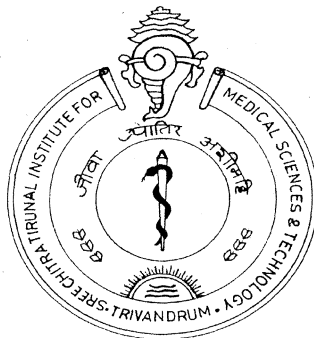


**Submitted in partial fulfillment of the requirement for the
DIPLOMA IN CARDIAC NURSING**

SUBMITTED BY

Miss. USHA DEVI

CODE NO-5881

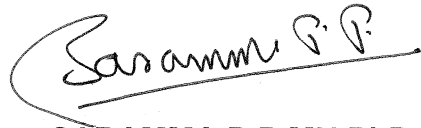


**SREE CHITRA TIRUNAL INSTITUTE FOR MEDICAL
SCIENCES AND TECHNOLOGY
THIRUVANANTHAPURAM**

NOVEMBER 2009

CERTIFICATE FROM THE SUPERVISORY GUIDE

This is to certify that Miss USHA DEVI has completed the project work on "A STUDY TO ASSESS THE EFFECT OF INDIVIDUALISED INSTRUCTIONS ABOUT HOSPITALISATION FOR PATIENTS UNDERGOING CAG /PTCA" under my direct supervision for the partial fulfillment for the diploma in Cardio vascular and thoracic nursing in the university of Sree Chitra Tirunal Institute of Medical Sciences and Technology ,Thiruvananthapuram . It also certified that no part of this report has been included in any other thesis for processing any other degree by the candidate.



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This is to certify that a project on “A STUDY TO ASSESS THE EFFECT OF INDIVIDUALISED INSTRUCTION ABOUT HOSPITALISATION FOR PATIENTS UNDERGOING CAG /PTCA” is done by me at SCTIMST under the guidance Dr Saramma P.P .It is also certified that this work has not been presented previously to any other university for award of degree, diploma or other recognition.

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Examiners

1)-----

2)-----

Guide(s)

1)-----

2)-----

THIRUVANANTHAPURAM

NOVEMBER 2009

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USHA DEVI .A

THIRUVANANTHAPURAM

DIPLOMA IN CARDIACNURSING

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SCTIMST, THIRUVANANTHAPURAM

ABSTRACT

Topic – A study to assess the effect of individualized instruction about hospitalization for patients undergoing coronary angiogram/ angioplasty.

Back ground of the study – In the past few decades, cardiovascular disease has spread from its traditional home in the middle -aged men in affluent societies to children and adults of both sexes in the affluent and poorer societies around the globe. Cardiovascular disease now is the single largest cause of death in the world today. Due to the improvement in the diagnostic and therapeutic modalities, thousands of peoples undergo coronary angiogram/ angioplasty. Appropriate and timely health education can help in smooth recovery and secondary prevention of coronary artery disease. **Aim** –

The aim of the study is to assess the effect of individualized instruction about hospitalization for patients who are undergoing CAG/PTCA. **Method** –This

study was conducted in cardio medical units in Sree Chitra Tirunal Institute of Sciences & Technology, Thiruvananthapuram. A Randomized trial was done among fifty patients who have undergone either angiogram or angioplasty for the study, twenty five each in control and interventional groups (who have got individualised instruction prior to the procedure). It was a post test only design. Total period of the study was from September 2009 to October 2009

by using a self prepared validated questionnaire to assess the level of knowledge , and an educational pamphlet to provide instruction to the interventional group were used as tools for the study. **Results** –The data

were analysed using Epi Info. This study revealed that knowledge score has increased in the interventional group compared to the control group and there

is statistically significant difference exists between them (p value <0.005). More than thirty percent of the sample showed misconception towards the restenosis after angioplasty followed by stenting, which indicates the need for more patient education in that area and generally saying, the patient education was generally effective. **Conclusion** – Appropriate and timely patient education is necessary prior to any interventional procedure. Studies using more sample size may be useful to validate the findings.

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LIST OF ABBREVIATIONS

CAG	—	Coronary angiogram or Coronary angiography
PTCA	—	Percutaneous trans luminal coronary angioplasty
AWMI	—	Anterior wall myocardial infarction
IWMI	—	Inferior wall myocardial infarction
ACS	—	Acute coronary syndrome

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CHAPTER I

INTRODUCTION

1.1 INTRODUCTION

Coronary artery disease is one of the most common diseases affecting the adult population. It causes more deaths, disability, and the economic loss in the industrialized nations than any other group of diseases. (Gersh et al., 1997). The United States has the second highest incidence of CAD, exceeded only by Finland., Japan has the lowest incidence (Spencer et al., 1995). Although the death rate from CAD has declined since late 1970 s in the United States and, to a lesser degree ,in Europe ,the prevalence of CAD - related morbidity and mortality in Asia ,with almost half of the world population, has been increasing steadily(Mehta et al., 1998). Coronary artery disease is the largest killer of men and women in the world. Chronic non-communicable diseases are in increasing role both in developing and non developed countries. (Joyce 2003).

According to (Barooah) 2003, the prevalence of cardiovascular disease especially coronary disease of the heart has been rising alarmingly. Coronary disease of the heart often leads to fatal heart attacks-about 30%of them are silent and some of them end up with sudden cardiac death .in 1990,coronary heart disease in India claimed 0.62 million men and 0.56 million women. The mortality rate of year 2000 was 0.85 million men and 0.74 million women.

Coronary artery disease affects approximately 12 million Americans, and more than one million experiences a myocardial infarction (MI) each year (American heart Association, 1998). In addition, CAD accounts for one half of the nearly 1 million annual deaths due to cardiovascular diseases and is the leading cause of death in both men and women. (American heart Association, 1998). CAD is also now recognized as the underlying etiology in most patients with chronic Heart failure in the United States, population that has been increasing steadily, particularly among the elderly (Gheorghiade & Bonow, 1998). About 64.5 million Americans have one or more types of coronary artery disease. Although the death rate from CAD has declined by 9.2% between 1991-2001, the death rate from coronary artery disease for the black men exceeds that of white men. About every 26 seconds an American will have a coronary event and about every minute a person will die from coronary heart disease (Braunwald.S 2008).

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In India cardiovascular disease are identified as a major contributor to mortality and morbidity. Conservative estimates according to the leading daily (1997) cited that CVD caused 2.38 million deaths and nation occurred a loss of 28.99 million disabilities. Over 80%of deaths and 85% of disability from cardiovascular diseases occur in middle and low-income countries.

As overwhelming as the mortality statistics appears, much progress has been made in the prevention, diagnosis and management of CAD. As a result the death rate from cardiovascular diseases declined 36.5% from 2000 to 2006(Yusuf et al 2007). Coronary disease will take an epidemic proportion by the year 2015. Half of deaths in india are likely to be caused by CAD but these diseases are preventable. As a diagnostic measure angiography and as treatment measure angioplasty are proven to be revolutioned the out come of CAD over 5 years. (Amrit Kumar 2003).

Improvements in technology and technique have resulted in shorter hospital PTCA admissions of only 1-2 days. Such a short stay, high turnover environment limits the time available for nurses to support and care for those undergoing these procedures. Recent research into outpatient or day case

angioplasty has demonstrated that the need for medical admission to hospital is becoming obsolete 3. The outcome of such care delivery models seems to show that patients are expected to recover on their own, at home, and following limited care time with nursing and medical staff. (Higgins 2001)

Percutaneous transluminal coronary angioplasty (PTCA) is currently well recognized as a successful treatment for some coronary artery occlusions (Brezynnskie H). The increasing number of patients coming from abroad for these treatments also a proof for capability for taking up such tasks India. While the incidence of CAD is coming g down in world wide it is rising in India. This is due to the deficiency in our system, in the part of health education, therefore, awareness creation is the joint responsibility of doctors, media, and also the individual by these measures, a great reduction in CAD is expected (Blackwell 2001).

1.2 BACK GROUND OF THE STUDY

Coronary artery disease is the leading cause of death in our country. Many experts stated that life style include diet modification, weight reduction and exercise, reduction of stress and anxiety, medications and proper follow up would have to be implemented to reduce the burden of coronary artery disease. (Finkelmeier 2000).

The major cause of CAD is athero sclerosis, a pathologic process that causes irregularity and thickening of the arterial walls. Atherosclerosis is chronic, progressive, multifocal disease of the vessel wall intima whose characteristic

lesion is the atheroma or plaque (Schoen, 1997). The earliest lesions of atherosclerosis can be found in young children in the form of lipid –rich lesions (fatty streaks) composed of macrophages and smooth muscle cells. Fatty streaks are present almost all people after 20 years of age. In those in whom the lesions progress, fibrous plaques appear around the third decade, and more complicated lesions and their clinical consequences typically begin to develop in the fourth decade (Fuster et al., 1992) with 90% or greater reduction in luminal cross sectional area due to atherosclerosis, coronary flow may be inadequate to meet myocardial oxygen demand at rest (Schoen, 1997).

Characteristic of an individual or a population that predict the chances for the development of coronary atherosclerosis are termed risk factors. The major risk factors are

Modifiable risk factors	Non Modifiable risk factors
1) Hyper cholestrolemia	1) Older age
2) Hypertension	2) Male sex
3) Cigarette smoking	3) Heredity
4) Diabetes mellitus	

Because the first symptom of CAD is often fatal MI or sudden cardiac death, preventive therapy, screening of people in high risk categories, and early diagnosis and treatment are essential to reduce mortality and morbidity. Coronary angiogram is the definitive diagnosis for CAD. During coronary angiography, a contrast material is injected selectively in to the ostia of the

right and left coronary arteries, the coronary anatomy is outlined ,and areas of narrowing are identified. (Finkelmeier 2000).

TREATMENT

- 1) **MEDICAL THERAPY** – Includes life style modifications, pharmacological treatment with nitrates, beta blockers, calcium, channel blockers etc.
- 2) **REVASCULARISATION THERAPY** - Cardiovascular disease is the number one cause of death in the United States. The American Heart Association estimates that 71,300,000 Americans have one or more types of coronary artery diseases.

Revascularisation therapy eventually is necessary to restore blood supply to cardiac muscle that is jeopardized by acute or chronic obstruction of one or more coronary arteries. Current revascularisation therapies include catheter-based revascularisation (percutaneous coronary intervention (PCI) and surgical revascularisation (CABG). While percutaneous trans luminal coronary angioplasty (PTCA) is the standard catheter-based revascularisation technique, the term PCI has been adopted recently to reflect that the procedure often includes other techniques as well (eg, stent replacement) (Finkel meier, 2000). However Percutaneous coronary intervention is a major therapeutic modality in the treatment of CAD .First performed by Gruentzig in 1977, more than 480,000 PCI s are performed each year in the United States (Gruentzig,1978; American Heart Association, 1998). PCI is performed in a cardiac catheterization laboratory. Vascular access is achieved by percutaneous femoral artery puncture or less

commonly, brachial artery puncture or cut down (Lincoff and Topol ,1997). A guide catheter is advanced in a retrograde fashion in to the target coronary artery and angiographic views of the stenotic lesions are obtained. A balloon-tipped catheter is then advanced over a steerable coronary guide wire and positioned with the balloon across the stenotic lesion. One or more balloon inflations is performed to dilate the atheromateous segment. The duration of the balloon inflation may vary from 15 seconds to 2 to 3 minutes or more at the cardiologists discretion; duration of the balloon inflation usually is limited primarily by the development Of ischemic signs or symptoms due to the interruption of distal coronary blood flow (Lincoff &Topol,1997). In approximately 70% of patients, conventional balloon angioplasty is accompanied by placement of an intra coronary stent or atherectomy (Johoson etal ;1997). Stents are wire mesh tubes used to prop open arteries after PTCA.

Percutaneous coronary intervention (PCI) encompasses a variety of procedures used to treat patients with diseased arteries of the heart, for example, chest pain caused by a build-up of fats, cholesterol, and other substances from the blood (referred to as plaque) that can reduce blood flow to a near trickle, or a heart attack caused by a large blood clot that completely blocks the artery.

A joint 2005 American College of Cardiology/ American Heart Association/ Society for Cardiovascular Angiography and Interventions report gives guidelines for the management of patients undergoing PCI. The report

guidelines for the management of patients undergoing PCI. The report strongly recommends that PCI should be performed in facilities that have an experienced cardiovascular surgical team available as emergency backup for all procedures.

For patients suffering the crushing pain of a heart attack, a lifesaving trip may be to a hospital prepared to quickly open the blocked artery by inflating a small balloon and inserting a tiny metal structure called a stent to act as permanent scaffolding. The goal: to restore blood flow to the heart muscle within 90 minutes of the patient's arrival at the hospital. Science shows that patients truly benefit from a 'door-to-balloon time' of 90 minutes or less. PCI done in this emergency circumstance is referred to as "primary" PCI. Other PCI procedures, such as those done to unblock an artery before a heart attack occurs, are referred to as "elective" PCI.

In the past few years, there have been dramatic advances in PCI techniques, devices, and medications. Drug-eluting stents are among the most notable. These stents not only prop open the artery, they also slowly release medication that prevents the overgrowth of scar tissue that can renarrow the artery and block blood flow to the heart, a complication known as restenosis.

Additional highlights of the guidelines include:

- Updated recommendations on using anti-clotting medications, such as clopidogrel, low molecular-weight heparin, and bivalirudin, before, during, and after PCI;

- A recommendation that new protective devices be used to trap bits of plaque and blood clots that can break loose during PCI of aging veins from the legs transplanted to the heart during coronary artery bypass surgery;
- A detailed analysis of the circumstances under which PCI is the best treatment for heart attack;
- A recommendation for early follow-up of patients who have PCI of the left main coronary artery, which supplies blood to a large portion of the heart muscle; and
- Strategies for ensuring the best possible patient outcomes and for monitoring quality of care.

Finally, requirements were outlined for institutional and physician competency – including quality assurance and institutional and physician.

Since late 1970s, the techniques to treat CAD have expanded over PTCA. Today the term PCI is used to describe less invasive procedures to treat CAD and include PTCA, laser angioplasty, atherectomy, and stenting.

Parameter Evaluated in patients Selected to Receive Primary Angioplasty

- Age
- Haemodynamic status

- Angiographic anatomy ;

Single –double-, or triple –vessel disease.

Vessel involvement; LAD, LCXS, RCX

Lesion location ostial; proximal, mid or distal disease

Percent grade stenosis

- Thrombolysis in myocardial infarction (TIMI) flow 0,I,II,III
- Presence of chest pain consistent with acute myocardial infarction
- Electro cardiogram evidence of acute myocardial infarction;

1 mm ST elevation in two contiguous leads

or

1mm ST elevation believed to represent reciprocal changes to an area of infarction

INDICATIONS

Clinical

- Symptomatic(angina un relieved by medical therapy)
- Asymptomatic but with severe underlying stenosis
- Stable/unstable angina
- Acute myocardial infarction
- High –risk Surgical candidates

Anatomical

- Severe stenosis($\geq 70\%$)
- Proximal or distal lesions
- Single and multi vessel diseases
- Bifurcation lesions
- Ostial lesions Totally occluded vessels
- By pass graft lesions
- “Protected” and unprotected left main coronary artery (previous LAD or LCX coronary artery by pass graft)

CONTRA INDICATIONS

- Severe left main coronary artery disease
- Mild stenosis (70%)
- Severe LV dysfunction
- Dilatation of the last remaining patent artery
- Patients will require good cardio pulmonary support during the procedure.

ASSESSMENT AND MANAGEMENT

Patient preparation includes

- Lab tests specifically renal function tests.
- Informed written consent v
- NPO after mid night
- Anti microbial skin preparation
- Pre operative medications including anti coagulants, anti platelets, Beta blockers, Calcium channel blockers etc.
- Surgical stand by

TEACHING GUIDE

Precautions Post -PTCA

- Remain on bed rest for 4 to 6 hrs.
- Maintain the involved leg in a straight position (for Judkins Technique)
- Avoid an up right position - Avoid vigorous use the abdominal muscles, as in coughing, sneezing, or moving the bowels.

COMPLICATIONS OF CAG and PTCA

- Angina
- Myocardial infarction
- Abrupt closure

- Dissection/intimal tear
- Hypotension coronary branch occlusion
- Restenosis
- Allergy to dye
- Bleeding and Haematoma
- Central nervous system events. (Morton ,2009)

Improvements in technology and technique have resulted in shorter hospital PTCA admissions of only 1-2 days. Although PCI most often is performed as an elective procedure, it is also being performed increasingly as an emergent treatment for acute MI .

Death occurs in approximately 1.0%of patients who undergo PCI, non fatal mi occurs in 4.3%, and emergency surgical revascularisation is needed in 3.4%. (Lincoff & Topol 1997). Most patients who undergo PCI may experience substantial, immediate relief of symptoms of myocardial ischemia; angina is decreased for eliminated in 88%and 76%of patients., respectively. (Lincoff & Topol 1997). In patients who receive an intra coronary stent during PCI, the restenosis rate is some what lower.(Han et al ;1996).

The major pathologic process leading to restenosis is exclusive medial and plaque smooth muscle proliferation as an exaggerated response to angioplasty induced injury.(Schoen ,1997). Recurrence of ischemic signs and symptoms is most likely during the first after PCI (Lincoff et al 1997).

Better care to be needed for the prevention of risk factors of CAD before and after PTCA. Knowledge about hospitalization for PTCA and major complications after PTCA is important for the reduction of risk factors as well as reduction of cardiac complications and death.

1.3 NEED AND SIGNIFICANCE OF THE STUDY

CAD continues to be a major health problem through out the world. (Blackman 2004). Percutaneous transluminal coronary angioplasty (PTCA) is currently well recognized as a successful treatment for some coronary artery occlusions. (Brezynnskie H).

According to the American Heart Association's Heart Disease and Stroke Statistics – 2009 Update:

- 1,314,000 angioplasties were done in the United States in 2006. Of these 1,313,000 were percutaneous coronary interventions (PCIs).
- 855,000 men and 459,000 women had angioplasties.

In India around 64, 000 CAG and 48,000 have done in 2008. (Indian Heart journal , 2009). In SCTIMST Thiruvananthapuram around 4000 and 1800 patients have undergone CAG and PTCA respectively in the year 2008.

Coronary Angiography performed by cardiac catheterization ,a method of documenting coronary insufficiency is performed to confirm the presence of coronary artery disease. Although this procedure is more invasive than tread mill testing and thallium imaging ,it is the gold standard test to pinpoint the

location of any stenosis. PTCA is a non surgical technique used as an alternative to CABG in the treatment of obstructive CAD. When indicated and if successful, PTCA can alleviate myocardial ischemia, relieve angina pectoris, and prevent myocardial necrosis. PTCA is the hall mark procedure and serves as the basis of almost all other percutaneous coronary interventions. This process that leads to successful coronary artery dilatation with the help of a co axial catheter system by several inflations of balloon ranging from 30 seconds to 300 seconds, to relieve stenosis and to improve blood flow is complex and not clearly defined. As an alternative treatment for CAD, PCI compares favorably with CABG in terms of risk, success rate, the patients physical capacity after the procedure, length of hospital stay and the costs. (Morton 2009). Improvements in technology and technique have resulted in shorter hospital PTCA admissions of only 1-2 days. Such a short stay, high turnover environment limits the time available for nurses to support and care for those undergoing these procedures. Recent research into outpatient or day case angioplasty has demonstrated that the need for medical admission to hospital is becoming obsolete 3. The outcome of such care delivery models seems to show that patients are expected to recover on their own, at home, and following limited care time with nursing and medical staff. (Higgins 2001).

The short amount of time spent with nurses was also an issue with participants. Alternative nursing care processes could be explored in an endeavor to maximize time with patients. Nursing information and psychological support could be provided via pre-admission consultation with

nurses at outpatient clinics. Alternatively, posting out the written information about PTCA prior to admission may free up some time for the nurses to focus more on the patients' feelings and concerns. Staggered admission times that correlate to the scheduled procedure time could allow opportunity for completion of both the physical and psychological aspects of care. Opportunities to 'acquire knowledge' could be enhanced by multi-media education programmes tailored to meet individual needs and learning styles. Specific angioplasty units could be considered to care for these elective patients, rather than the busy and somewhat stressful critical care environments. Clearly the angioplasty experience represents a period of readjustment that may be anxiety provoking for some patients as they move through various emotions and physical challenges during the various phases of the angioplasty experience. The angioplasty process described in this study has been offered as a possible framework for nursing practice. Participants' experiences provide new knowledge of the concerns, anxieties and challenges faced when undergoing angioplasty. Providing the patients' point of view clearly indicated that psychosocial aspects of nursing care are an essential component of nursing practice for angioplasty patients. (Gershan J 1984)

By these reasons most of these patients have so many doubts regarding the indications, contraindications, complications, their stay in the ICU / Ward before and after the procedure etc. And another aspect is less co-operation from the side of patients results providing poor nursing care which will leads to more common complications such as bleeding from the access site,

haematoma, and need for emergency CABG and surgical stand by during the procedure etc. Therefore pre procedural teaching is very important and it includes discussion regarding the causes of coronary reocclusion and the possibility of emergent repeat PCI or cardiac surgery.

Also it is an alarming condition is that patients are not getting enough information's about the need for periodical follow ups and risk factor reduction programmes to reduce the risks of further MI and death.

The most common cardiovascular risk factors were physical inactivity, increased body mass index, high BP and high cholesterol among post PCI participants 12-18 months after revascularisation. (Ferdandez et al., (2006))

Hypertension is one of the more common reason for vascular complications after percutaneous Coronary interventions.(Dumont 2007).

Obese patients were significantly younger and had consistently worse baseline clinical characteristics than normal or overweight patients, with a higher incidence of hypertension, diabetes, hypercholesteremia and smoking history and will lead to major risk for MI following PTCA. W.S. Poston (2004).

By These reasons, the risk factors of CAD are continuing again after angioplasty. At least 0.5% of heart attacks are occurring every day in Kerala following PTCA (So man et al 2004). There lies the importance of assessing knowledge of patient about coronary artery disease ,risk factors, diagnostic

measures, and interventional procedures etc. so this study is aimed to assess the knowledge level of patients about the above mentioned matters and after finding the areas of lack of knowledge, fill with individualised instructions.

Sree Chitra Tirunal Institute for Medical Sciences and Technology, Thiruvananthapuram is a tertiary hospital, which is specialized for interventional procedures in cardiology. Due to the availability of improved diagnostic and therapeutic interventions such as angiogram and angioplasty thousands of peoples are undergoing these procedures annually on an in patient basis .So the aim of this study is to assess the level of knowledge about hospitalization among who are undergoing CAG/PTCA and to assess the effectiveness of an individualized instruction using an educational pamphlet With a belief that appropriate and timely health education will help the persons to get awareness about the about procedures, benefits, complications and hospitalization for the procedures, which will help in smooth patient recovery and secondary prevention of diseases ..

1.4 STATEMENT OF THE PROBLEM

A study to assess the effect of individualized instruction about hospitalization for patients undergoing CAG /PTCA.

1.5 OBJECTIVES

To assess the effect of individualized instruction about hospitalization among patients undergoing CAG /PTCA .

1.6 OPERATIONAL DEFINITIONS.

- a) **Knowledge** –A state of awareness or understanding with conscious mind. In this study knowledge refers to awareness or understanding about hospitalization for CAG /PTCA .
- b) **Cardiac units** – It includes cardiology medical ward and cardiology medical ICU.
- c) **CAG** –It is the gold standard test to pinpoint the presence and location of any coronary artery stenosis. A catheter is introduced in to the arterial system retrograde to the ascending aorta under fluoroscopy. The right and left main coronary artery is then selectively cannulated, and a radio opaque dye is injected directly in to the artery through the catheter. As the dye flows through the artery, the lumen of the artery can be visualized and the image is recorded on a film .
- d) **PTCA**— An interventional procedure which consists of balloon expansion of one or more stenosed coronary arteries.
- e) **CAD**— It is the most common form of heart disease. There is narrowing of the coronary arteries due to atheroma and its complications , particularly thrombus to prevent adequate blood supply to the

myocardium. This condition can be manifested with stable angina, unstable angina, MI, heart failure arrhythmia or sudden cardiac death.

- f) Hospitalisation for CAG/PTCA—The preparations that patients should undergo before and after procedure.
- g) Educational pamphlet –It is a guideline for patients undergoing CAG/PTCA about their preprocedural preparations ,immediate post procedural care in the ICU, and complications.

1.7 METHODOLOGY

Setting –Cardiac units in SCTIMST, Thiruvananthapuram.

Sample—Patients undergoing CAG/PTCA .

Sample size –50

Sampling technique – Random sampling method .

Design of the study –After only or post-test only design.

1.8 TOOL PREPARATION

In order to assess the knowledge of patients about hospitalization for CAG /PTCA self prepared questionnaire including 10 questions, based on various aspects of preprocedural preparations, immediate post procedural care in the ICU, complications after the procedures and an educational pamphlet to provide individualized instruction to interventional group is also prepared .

1.9 LIMITATIONS

The study is conducted only on cardiac units in SCTIMST, Thiruvananthapuram and underlying ones are excluded.

- Patients who do not know Malayalam.
- Patients who are haemodynamically unstable and not willing to participate.
- Patients who are physically and mentally handicapped .

More over it is an after-only type design i.e. not a true experimental study.

1.10 ORGANISATION REPORT

There are total of 7 chapters. First chapter deals with the Introduction, Back ground of the study, Need and significance, statement of the problem, objectives, operational definitions, methodology and limitations. Second chapter deals with the Review of literature. Third Chapter deals with the Methodology. Chapter 4 deals with the analysis and interpretation of data. Chapter 5 deals with the Summary, discussions conclusion, implications and\recommendations. Chapter 6 and 7 deals with the References and Appendices respectively .

CHAPTER - 2

REVIEW OF LITERATURE

Review of literature is an important aspect of any research from beginning to end. It gives character insight in to the problem, and helps in selecting methodology, developing tool and also analyzing the data .With these in view an intensive review of literature has been done.

Coronary artery disease is the leading cause of death in our country. Many experts stated that life style include diet modification, weight reduction and exercise, reduction of stress and anxiety, medications and proper follow up would have to be implemented to reduce the burden of coronary artery disease. Better care to be needed for the prevention of risk factors of CAD before and after PTCA. Knowledge about hospitalization for PTCA and major complications after PTCA is important for the reduction of risk factors and as well as reduction of cardiac complications and death.

The major topics coming under in this study includes

- 2.1 Patient education studies
- 2.2 Pre procedural preparation – Hospitalizations for CAG/PTCA.
- 2.3 Immediate post procedural care in the ICU after CAG/PTCA
- 2.4 Risks and complications after CAG/PTCA

2.1 PATIENT EDUCATION STUDIES

Since patients are the most important persons in the hospital, they have the right to know all things belonging to their diagnosis and treatments.

Enzenhofer et al., (2004) conducted a study to compare the use and effectiveness of computer based visualization opposed to standardized conversation for providing patients with information of forth coming procedures. (coronary catheters or endoscopic procedures). The author had done a randomized trial with 56 participants allocated in two different groups. Visualization Group (standardized information supported by a tool for displaying two – dimensional pictures to explain medical facts as well as informative leaflet) or Control group (standardized information and informative leaflet only). Detailed information was given about the indication ,the probable complications and the details of the forth coming procedures . All participants had to reach a Karnofsky score of 70 points and be able to understand German or English. Main out come factors were patient satisfaction with physician –patient conversation, patients acquired knowledge and duration of the intervention as described above. The author finally concluded that patients of the visualization group were more satisfied with the conversation and were statistically more significant .No differences could be found due to differing age or educational level .

Holmboe et al., (2008) conducted a study to assess the knowledge of patients about the reasons for elective Percutaneous coronary

revascularisations (PCR), patient expectations of the benefits of PCR, and their understanding of the risks associated with PCR among patients undergoing their first elective PCR.. The author hypothesized that the patients will over estimate the benefits and underestimate the risks associated with PCR. A prospective, semi structured questionnaire was prepared and selected patients undergoing first time elective PCR. 52 consecutive patients with a mean age of 64.3 years (range 39-87) completed the interview. And the author finally concluded that the majority of the patients had unrealistic expectations about the long term benefits of elective PCR and was not aware of the potential risks, even though they expressed a strong in participating in the decision to have PCR. More work is needed to define the optimal strategy to educate patients about the benefits and risks of elective PCR , and whether such education will affect patient decision making.

Amodeo R et al., (2009) conducted a study to understand the effectiveness of an education programme led by nurses for patients admitted to hospital with coronary heart diseases (CHD).. The nurses of cardiology division of the Desio Hospital have held regular health education meetings for inpatients with CHD and their relatives. The topics covered are the nature of CHD, its risk factors and the prevention of recurrences. Before and after the meeting a Questionnaire was given to explore the level of knowledge. From May 2003 to September 2004, 201 patients attended the meeting. The majority were attended with acute coronary syndrome. The author finally concluded that this meeting organized by the nurses for patients admitted for CHD improves their knowledge of their illness and awareness of the benefits of correct lifestyles to

prevent worsening of their disease. The author also conducted a study to understand the effectiveness of an health education meeting for patients admitted to CCU for an acute coronary event. The planning and implementation of the initiative lasted for two years and involved 7 nurse and one doctor. The organization required efforts related to the event itself (preparation of training aids, identification of contents and methods for delivery) but also organisative changes. The assessment of the effectiveness of health education was also planned ; administration of a questionnaire to explore lifestyles and knowledge of the illness before and after the meeting ;phone interviews after 3,6,12 months the meeting .Since May 2003,in the first 3 years 74 meetings have been organized ,involving 507 patients and 329 relatives. Each meeting lasted for 2 hours and contents delivered encompass the coronary event ,risk factors and their modification ,healthy lifestyles. The author finally came to an assumption that initial preliminary results on the impact of the meeting on lifestyle changes are promising and the initiatives are ongoing to include this activity among officially recognized nursing activities.

Leigh R. Tooth et al., (2008) conducted a study to evaluate whether a pre-procedural education/counselling program can improve knowledge and the reduction of coronary risk factors in 130 patients (65 experimental; 65 comparison) approximately four months after having percutaneous transluminal coronary angioplasty (PTCA). Knowledge and physical activity levels ($p=0.00$) improved for both groups from pre-PTCA to the follow-up. Further, the experimental group showed favourable change in total cholesterol

level ($p=0.02$) at follow-up. That participation in the intervention did not improve knowledge or risk factor prevalence may reflect the adequacy of standard ward care, the influence of factors not under the control of the study or the overall experience of PTCA. Limitations of educational programs without follow-up sessions are discussed and alternate rehabilitation approaches suggested.

Limbruno U et al., (2008) conducted a study to understand the effectiveness of an audiovisual support in adjunct to the standard written informative form in obtaining ;a) effective patient information before invasive coronary procedures, and b)patient familiarization with the cath lab team, equipment ,and the main procedural phases. The audio visual informative support was carried out through the explicative interviews to the operators of the cath lab, animations and realistic visualization of the procedural phases. Patient information was evaluated with a multiple –choice questionnaire. Self-assessment of the patient's emotional state was also evaluated using a semi quantitative scale. The author finally concluded that audiovisual support may favor patient's adequate information prior to written consent and, when prepared by the cath lab team operators, it may optimize his emotional state through a "familiarization effect".

Faris J et al., (1990) conducted a study to examine the effect of health education about PTCA by health professionals on quality of life. Secondary purposes are to determine if there is an improvement in state anxiety and physical functioning after PTCA. Data on quality of life in these patients will

provide physicians, nurses and other health professionals with a basis to help the angioplasty patient adjust after the procedure. This information will add to the present body of knowledge, serve as a basis for patient education and guide further research. In addition, data on the subjective perception of quality of life may provide an additional index of success or failure of therapy. Subjects scheduled for elective PTCA were mailed a study packet containing three questionnaires. Prior to their admission to the hospital for a scheduled PTCA, subjects completed the Quality of Life Index (QLI), Spielberger's State-Trait Anxiety Inventory and the Physical Functioning Questionnaire. Demographic data were collected from subjects' medical records. Six weeks after a successful PTCA, a second study packet was mailed to subjects. Twenty subjects participated in the study. The majority were employed, Caucasian males with multivessel coronary artery disease and had complained of symptoms less than three months. Paired t-tests demonstrated improvement in the (1) health and functioning subscale ($p = \text{less than } 0.034$), (2) decrease in state anxiety ($p = \text{less than } 0.030$), and (3) increase ($p = \text{less than } 0.000$) in perceived physical functioning.

Brezynnskie H et al., (1998) conducted a study to identify what patients' view as their learning needs when undergoing PTCA. Secondly, this study sought to compare the patients' view to the perceptions of cardiac nurses about the learning needs of PTCA patients. Two hundred and fifty-one patients and thirty-three nurses completed a PTCA Learning Needs Inventory (PTCALNI). Both the patients and the nurses scored all items "moderately" to "very important" to learn. The items "need to know the results of my angioplasty,"

"what to do if my heart symptoms come back," and "what lifestyle changes are needed to prevent future build-up in my arteries" were among the highest scored items for both groups. As the length of stay for angioplasty patients decreases, in-hospital education for this population must be streamlined to concisely and efficiently address the learning needs identified by patients as most important to know in relation to having a balloon angioplasty. Therefore, as a result of this survey, nurses can feel satisfied that by focusing their time on topics identified as most important, they will have met most of the educational priorities for angioplasty patients.

Elsivier B (1997) made a study to determine the effect of a targeted education and support intervention on the rate of readmission or death and hospital costs in patients with heart failure (HF). The Author conducted a prospective, randomized trial of a formal education and support intervention on one-year readmission or mortality and costs of care for patients hospitalized with HF. Among the 88 patients (44 intervention 44 control) in the study, 25 patients (56.8% in the intervention group and 36 patients (81.8%) in the control group had at least one re admission or died during one year follow up and the author concluded that formal education and support intervention substantially reduced the adverse clinical outcomes and cost for patients with HF.

Charlson M.E (2002) made an attempt to improve health behaviors and outcomes after PTCA through patient education valuated study in a randomized controlled trial among 250 patients in which all patients complete

a computer baseline health assessment of 14 cardiovascular risk factors. Each patient is presented with an individualized risk-factor profile and asked to choose risk factors for modification. In the experimental group, each risk factor is present with a corresponding numerical biological age value that represents the relative potential benefit from modifying each risk factor. Risk reduction for these patients is framed as the opportunity to reduce present biologic age (the net present value), and improve 80percent health status and quality of life. In the control group, Division of General Internal Medicine risk reduction is framed in the standard risk factor approach as the value of preventing future health problems. The author concluded the economic theory is a plausible perspective from which to design interventions aimed at communicating risk and facilitating change in health behaviors and a health education is essentially a needed one after angioplasty.

Hortwitz et al., (2009) conducted a study to investigate the patients perception of patient information leaflets including their readability, comprehensibility, and their impact on adherence. A 14-item Questionnaire was prepared and answered by unselected patients in a general practice in Copenhagen. A total of 111 patients were included. The author finally concluded that patient information leaflet is an important source of drug information as most patients read the leaflet and nearly a third of the patients stated that information about the adverse effects had made them stop taking third medicine.

Elsevier (2007) conducted a study to confirm that Emergency Department education improves patient knowledge of coronary artery disease risk factors but not the accuracy of their own risk perception. The Emergency Department (ED) represents a unique environment in which patient education may improve coronary artery disease risk factor knowledge and relative risk perception. ED patients' understanding of CAD risk factors is often limited. Patients' perception of their own risk is often not a reflection of their true risk. The author hypothesized that an American Heart Association educational video intervention would improve patients' knowledge of coronary artery disease risk factors and personal risk awareness in the ED setting. This prospective observational cohort study. Our trial included 100 adult patients (age 18 and over), both male and female, using the ED population at an inner city tertiary care Level I trauma center hospital as our source of participants. Recruitment of patients began in January 2002 and ended in May 2004. Patients who watched the educational video did improve their knowledge of cardiac risk factors significantly when compared to patients who received no educational video intervention. In this study, this information was not retained at 30-day follow-up. However, there was still significant improvement in their knowledge when compared to baseline scores pre-intervention. Patients overestimated their risk when compared to an objective measure of risk. In both the study and control groups, patients significantly overestimated their risk pre-educational intervention, immediately post-educational intervention, and at 30-day follow-up when compared to an objective measure of risk. The author finally concluded that Simple educational intervention at a teachable moment (i.e. when a patient is experiencing chest pain in the ED) significantly

improves patient's knowledge of CAD risk factors immediately post-intervention. This improvement in knowledge is not fully retained at 30-day follow-up, which suggests that patients may benefit from further educational intervention prior to 1-month follow-up. Patients overestimate their risk when compared to an objective measure of risk, regardless of whether they receive an educational intervention or not.

Scholte et al., (2007) conducted a study to understand the effectiveness of patient education in risk factor management in patients with coronary artery disease and to assess the contribution of nursing to this programme. Within 3 Dutch hospitals consecutive patients were identified after a first coronary artery bypass graft, a first PTCA or hospital admission for acute myocardial infarction or ischemia (n=357). Data were collected through patient interviews at least 6 months after hospital admission and finally the author concluded that many patients with established coronary heart disease and cardiovascular risk factors do not remember ever having received information about management of risk factors. Clearly there is a substantial potential to improve professionals compliance to guidelines on risk factor management, including those on patient education and the perceived contribution of nurse to risk factor management is small compared to that of physicians and other care givers.

Krantz M J et al., (2004) conducted a study in the Inner-city hospital in Denver, Colorado to find out the importance of guideline-based pharmacotherapy in vulnerable patients (ethnic minorities and the poor) with

coronary artery disease (CAD) through a nurse-based quality-improvement program. The design of the study was retrospective program evaluation. One hundred fifty-one consecutive patients hospitalized with a CAD-related diagnosis. A nurse-management program was initiated for patients with angiographically documented CAD, and rates of guideline-based care were compared with rates for historic controls. The intervention consisted of two key elements: patient counseling with language-appropriate education materials and direct physician education regarding the importance of cardio protective drugs. The 151 patients in the intervention group were compared with 125 historic control patients hospitalized before the program was begun. Multivariable logistic regression analysis was used to assess differences in care with regard to ethnicity, education level, and insurance status, and to adjust for different baseline characteristics. At hospital discharge, patients in the intervention group were more likely to receive statins (71% vs. 52%, $p=0.001$) and angiotensin-converting enzyme inhibitors (79% vs. 51%, $p<0.001$) compared with controls. These differences remained after adjusting for ethnicity, education level, insurance status, and baseline clinical characteristics. Also, a trend was noted toward greater use of aspirin (92% vs 86%, $p=0.13$) and β -blockers (79% vs. 73%, $p=0.24$) in the intervention group compared with controls. Patients in the intervention group were more likely to receive counseling for smoking cessation. The author finally concluded that an inpatient nurse-management program improved the quality of care for patients with CAD regardless of socio demographic status. Properly designed disease-management initiatives can be effective for disadvantaged patients, who often obtain health care through emergency and inpatient services.

2.2. PRE-PROCEDURAL PREPARATIONS-

HOSPITALIZATION FOR CAG AND PTCA

Coronary angioplasty and intracoronary stent placement have emerged from being rare and risky procedures to the fastest growing specialty in cardiac care. Percutaneous transluminal coronary angioplasty (PTCA) and intracoronary stent placement offer an alternative treatment choice to coronary artery bypass surgery in the management of coronary artery disease. PTCA offers immediate relief of symptoms, low risks and a swift return to normal activities.

Coronary angiography and angioplasty continue to cause the patient considerable stress and anxiety, despite the reported benefits of such procedures. Therefore a thorough explanation is needed over the four areas such as .pre-admission, admission, during the procedure and the recovery phase .

Beckerman (1995) conducted a phenomenological study into the patients' perceptions of the diagnostic coronary angiography procedure; ten male patients were interviewed following the procedure. Apprehension and anxiety before the test were common themes in participants' responses. Fear of the unknown and the desire for information to demystify the unknown were both reported in every interview. Participants also described feelings of loss of control over physical and personal self and fear about the future as major

causes of anxiety. This study identified that preprocedural anxiety was common and represented a stressful period in the hospital experience and it can be reduced by proper patient education by the nursing staff.

Gulanick et al., (1997) undertook a qualitative research study of 45 participants in an endeavour to describe the angioplasty experience from the patients' perspectives. Focus groups were held consisting of small numbers of patients who had undergone coronary angioplasty in the previous 3-18 months. Interviews were tape-recorded and a data analysis was conducted utilizing a constant comparative method. Positive themes identified in this study included contentment with comfort measures, satisfaction with supportive hospital care and trust in medical competence. The most frequent theme was satisfaction with hospital care before, during and after the PTCA. Supportive care prior to the procedure centered on education and emotional support, while some participants commented on the literature and videos used for education. Negative themes included anger over unmet needs for comfort or support, feeling dehumanized and frustration with lack of control in decision making.. Negative feelings ranged from general disgust to the worst experience possible. Several commented on feeling dehumanized and felt like they were treated in a disrespectful, assembly-line fashion. These results highlighted the perceptions and needs of angioplasty patients and pointed out the necessity for nurses to play a greater role in providing patients with the emotional support and information required to meet their needs. This study has been instrumental in illuminating the needs of angioplasty patients in hospital.

Higgins et al., (2001) conducted a study to understand the experiences of patients preparing for angioplasty.. Eight men and three women were interviewed 1 month after discharge from hospital. Verbatim transcripts were analyzed for major themes using the qualitative techniques of grounded theory. Participants described working through a problem solving process in response to the perceived health threat associated with undergoing angioplasty. In step one, the problem was identified. In step two, coping responses were taken to try and solve the problem. In step three, the results of the coping responses were appraised or evaluated. The two problems identified were ongoing chest pain and anxiety related to fear of the unknown. The coping responses initiated included acquiring knowledge of the angioplasty, confidence in the skill of the doctor, support from family and gearing up psychologically. In the final appraisal of the coping responses, the participants decided to either go ahead with, or delay the angioplasty procedure. The results of this study indicate that the preparation for angioplasty represents a period of adjustment that may be anxiety provoking. Participants' experiences provide new knowledge of the concerns and challenges faced when undergoing such an invasive procedure in a short stay environment. The results clearly highlight that psychosocial aspects of nursing care are an essential component of nursing practice for angioplasty patients.

Gaw 8 (1992) examined patients' experiences, perceptions and motivations for lifestyle modification following elective PTCA. Utilizing a qualitative approach, interviews were conducted with 14 patients before, after, and 2-3

weeks following the procedure. Anxiety was also identified as a common experience prior to the angioplasty and supports the work of Becker man et al. and Peterson 5. Specific anxieties were identified in relation to fear of death, fear of bypass surgery and fear of severe chest pain during the PTCA procedure. Similarly, seeking information to demystify the unknown was also reported. All participants received an information pamphlet and instruction from the cardiologist. No mention was made of nursing interventions. Seven of the 14 participants reported that they were unsure of how the procedure would help relieve their chest symptoms. Furthermore, nine out of 14 would have liked more specific information on how the procedure does greater role in helping patients to cope with pre-procedure anxiety, through education and psychological support. These results further highlight the need for nurses to play a greater role in helping patients to cope with pre-procedure anxiety, through education and psychological support.

However, nurses are limited by the amount of literature available, which provides a deeper understanding of the physical and psychological concerns patients may face as they undergo invasive coronary angioplasty procedures. The current study aimed to address this knowledge gap and provide greater knowledge of PTCA from the patients' perspectives.

Previous comments in the literature have alluded to the short stay, high turnover nature of the angioplasty care system. Within such a system, nurses may view angioplasty as a highly mechanized, routine and mundane process that involves little risk to the patient. If such views exist, then nurses may not

be sensitive to the psychological impact that angioplasty has on some patients. As such, further research is required to establish nurses' perceptions of angioplasty to determine if disparities exist between their perceptions and those of their patients. Nurses may improve practice by taking more time to build a rapport with the patient. This could provide the opportunity to identify concerns and implement nursing actions early to decrease anxiety. Such practices could help the patient to feel their needs were being met. Participants revealed the doctor as the most important source of Information and comfort. In contrast, nurses were not recognized as being as visible as the doctor in education and support. A perceived over-reliance by nurses on the supply of pamphlets for education over individual consultation was also highlighted. If nurses are not visible in their education and support of the patient, then the patient may experience raised anxiety levels and feelings of isolation as demonstrated in these studies and by these measures nurses could make opportunities to engage in this anxiety reduction and patient education activities.

Therefore, thorough health education is needed in these areas such as

- 1) reduction of anxiety
- 2) importance informed written consent
- 3) anti microbial skin preparation before procedures.
- 4) blood examinations
- 5) NPO after midnight
- 6) importance of their co-operation in the ICU .

2.3 POST PROCEDURAL CARE IN THE ICU BY NURSES

Usually patients are admitted in to the ICU after PTCA and in the ward after CAG. Arterial sheath will be there after PTCA. Monitoring of the vitals, ACT, ECG, care of the puncture are important in immediate post operative period. Patient has to lie down flat without bending the leg for 6 hours. When the ACT returns to normal ie, below 200 the sheaths are removed by doctors or experienced nurses and he can ambulate after 12 hours. Usually patients are discharged on the third day of procedure.

Dolomon S (1994) developed a program to provide continuity of care for patients undergoing percutaneous transluminal coronary angioplasty (PTCA) or directional coronary atherectomy (DCA) for coronary artery disease by the Angioplasty Program Nurse at the Sunny brook Health Science Centre. To assist the patient and their family throughout the course of treatment and to offer strategies and resources for risk factor reduction the author developed a patient assessment tool with clearly defined goals and objectives for documentation. Through this every one made understood that Helping patients set realistic expectations in terms of procedural outcome and lifestyle modification is an important part of patient education and health promotion. Short hospital stays require good planning and comprehensive educational strategies in order to meet patient teaching outcomes. Evaluation is an important component of any program and having well defined goals and objectives with measurable outcomes aids the process.

Beattie & Geden (1990) conducted a study and found that although Percutaneous transluminal coronary angioplasty (PTCA) has been found to be an effective alternative to open-heart surgery for patients with coronary artery disease, the procedure itself can be associated with severe anxiety and discomfort for the patient. The authors report the discomfort that patients experiences during recovery from PTCA can be reduced by good nursing interventions that helps to reduce pain for these patients and the authors also reviewed several studies that investigate head elevation, early walking, and patient comfort after percutaneous transluminal coronary angioplasty .

The increasing number of endovascular procedures by both cardiologists and vascular surgeons strain available resources, such as recovery space, creating delays in the throughput of patients. The use of alternative settings, personnel, and approaches to post procedural care has been proposed to maximize the number of procedures that can be done with existing procedure rooms. However, a key question remains about whether this can be done safely and achieve good patient outcomes.

Elsivier B.V (2009) conducted a study to evaluate the safety and effectiveness of shifting post procedural care and removal of intra arterial sheaths by the staff in the cardiac catheterization laboratory to specially trained acute care nurses on an inpatient vascular surgical unit. The purpose of this project was to develop a performance improvement project that included administrative, educational, and clinical components and to evaluate effects on key patient outcomes, prospectively, over 15 months.

In (2009) the author conducted an another study with two objectives (a) to check if nurses' performance in 1999 and 2005 was in accordance with the protocol for arterial sheath removal and (b) to compare both measurements to explore differences in performance over time. After training registered nurses in sheath removal and observed them during sheath removal in elective uncomplicated PCI-patients and developed and used a checklist, including 10 elements and 65 items and concluded that Registered nurses achieved the norm for good performance (80–89%) of removing arterial sheaths according to protocol after a training programme and this is stable in time. Since the norm for excellent performance ($\geq 90\%$) was not achieved, current performance could be improved, e.g. by yearly repetition of training and observation of skills. More research is needed, and could focus on the validation of the instrument. Also multi-centre studies with this checklist could test the association between the quality of arterial femoral sheath removal and the occurrence of vascular complications.

Linda M et al., (2002) conducted a study to evaluate whether capping the arterial sheath after PCI increased the occurrence of complications such as bleeding, hematoma, and clot formation. And also to determine if the use of a transducer was necessary to prevent to these complications. A meeting was held with physicians and nurses who worked in the cardiac catheterization laboratory, the cardiac care unit, and the cardiac intermediate care unit. A practice change was proposed: patients' arterial sheaths would no longer be connected to a transducer with a heparinized and pressurized flush device

during the 2 to 4 hours after PCIs before sheath removal. Instead, the sheaths would be fast flushed for 3 to 5 seconds with 500 IU of heparin in a pressurized 500-mL bag of isotonic sodium chloride solution and then capped. The arterial sheaths were capped in patients who were in stable condition without complications after PCI, primarily patients who were hospitalized with myocardial infarction or because they had unstable angina. The patients would have frequent monitoring of vital signs by a cardiac monitor. Patients in unstable condition, operationally defined as those who required placement of an intra-aortic balloon pump or inotropic infusions or were in cardiogenic shock, would have the arterial sheath connected to a transducer for blood pressure monitoring. The variance tool was revised to monitor the practice change. The researcher used a tool to evaluate the effectiveness of this change in practice and to monitor for any adverse events associated with the new practice. Because this change in practice was evidence based, consent from the patients who were involved was not obtained. From July 1, 1999, through December 31, 1999, a total of 352 patients underwent PCI. Variance forms were completed for 254 of the 352 patients and, updated variance form was used for only 147 patients. Among those 147 patients, 120 had the arterial sheaths capped, 6 had the arterial sheaths connected to a transducer, and 21 had missing data. Of the 147 patients with updated variance forms, 109 (74%) had no reported complications. Nurses reported difficulty in withdrawing blood from the arterial sheath in 3 patients (2%). Once the individual catheters were pulled back a couple of centimeters, blood was withdrawn, establishing patency. Issues not outlined on our data collection form were involved in the care of 6 patients (4%). Evaluation forms of the

remaining 29 patients (20%) had missing data. And results indicated a patency rate of 100% for the capped sheaths. In summary, the capping of arterial sheaths after PCI was a safe and successful change in practice and finally concluded that Nurses play a vital role in the management of patients after PCIs. Care and removal of the arterial sheath and monitoring of patients' anticoagulation status are becoming acceptable practices in most inpatient cardiac settings. With invasive blood with the increasing use of potent platelet-inhibiting medications and the associated risk of bleeding complications, time-efficient nursing care becomes even more important in patients' optimum outcome. As pharmaceutical therapy and invasive technology evolve in the treatment of cardiovascular disease, nurses cannot practice on the basis of assumptions. Nurses must continually evaluate and revise clinical practice on the basis of the results of clinical research. By instituting evidence-based changes in practice, such as capping the arterial sheaths, nurses will be able to provide the best possible care in a rapidly evolving clinical environment.

Benson LM et al., (2005) conducted a study to determine whether there insignificant difference exists between 3 methods of sheath removal: manual compression, mechanical compression with the Compressor, and mechanical compression with the Femostop.. Ninety patients were randomly assigned using a random-numbers table to undergo one of 3 methods of sheath removal by experimental design after requested the patients' to give consent to undergo randomization of the sheath removal. Post procedure, each patient was told which method of sheath removal he or she would undergo based on results of the random-numbers table assignment.: There were no significant

differences between the groups with regard to age, body mass index, sheath size, heparin utilization, anti platelet agents, or use of IIb-IIIa inhibitors. The complications between the methodologies for sheath removal were statistically significant. Patients who underwent manual sheath removal had fewer complications compared with those who underwent sheath removal using the Compressor or Femostop. Based on the results of this study, staff in the study setting is currently exploring manual sheath removal as the preferred practice. . When using manual pressure application in conjunction with closure pad devices, hold times can be decreased, thus resulting in cost savings through decreased equipment use, earlier discharge times, and improved bed utilization.

Jaspers Luc et al., (2003) conducted a study o demonstrate that immediate sheath removal after PCI is safe and feasible with the ultimate goal of enhancing patient care and hospital efficiency. Methods - In patients undergoing PCI, the femoral arterial sheath was removed immediately after PCI in the cath lab, using a Femostop, without manual compression. The patient's discomfort and the complication rate were measured. The overall time given to haemostasis was assessed. A total of 339 patients were included. Patient discomfort during Femostop placement was assessed as follows: 85% suffered none, 2% slight, 3% moderate, and 10% severe discomfort. Complication rates were: 36% ecchymosed, 10% haematoma <6 cm, 5% haematoma>or = 6 cm (literature data of manual compression - LDMC - 5.1% to 9%), 1% pseudoaneurysm (LDMC 1% to 1.8%), 0.6% need for transfusion (LDMC 2.5%), 0.3% need for vascular repair (LDMC 1.5% to

2.7%). The patient's immobilization time after PCI was reduced from at least 10 hours to 6 hours. The time given to haemostasis was also reduced. Conclusion - Immediate sheath removal using a Femostop is feasible, safe, and improves the patient's comfort. The complication rate is equal or even lower to that reported after classical manual compression. Early ambulation improves the patient's comfort, and reduced time given to haemostasis causes organizational benefit. If a vascular closing device is not routinely used after PCI (for example, for economical reasons), immediate sheath removal after PCI.

Emel Yılmaz et al., (2008) made a study to evaluate the effects of putting a sandbag on femoral access site after cardiac invasive procedure and changing patients' position in bed on vascular complications rate and the severity of back pain related to the duration of bed rest after procedure. This randomized controlled study included 169 patients divided into five different groups assigned randomly. Group 1 patients were applied 4.5 kg sandbag for 30 minutes and Group 2 patients were applied 2.3 kg sandbag for 2 hours on femoral access site after procedure. Group 1 and 2 patients' body positions were changed every hour beginning from the second hour. Group 3 patients received application of 4.5 kg sandbag for 30 minutes and Group 4 patients were applied 2.3 kg sandbag for 2 hours on femoral access site after procedure and these patients' body positions were not changed after catheterization. Group 5 patients remained in supine position without changing position and had no application of sand bag, and concluded that sand bag was not effective in decreasing the incidence of the vascular

complications after procedure. To increase the comfort and to decrease the back pain of the patient, the patient's position should be changed and the head of the bed should be raised about 30 or 45 degree application of a sandbag .The incidence of vascular complications (VCs) after femoral sheath removal following a percutaneous coronary intervention procedure (PCIP) occurs variably (5%-30%) depending on gender, body size, and co morbidities. VCs after a PCIP are distressful for subjects and increase costs and nursing care. Evidence on which subject characteristics contribute to Julie Sabo, made a study to determine which subject characteristics and co morbidities contribute to VCs post-PCIP. This co relational study included 306 subjects. Groin areas were assessed for the presence of VC immediately after compression is released. Then 12 and 24 hours after sheath removal. Subject characteristics and co morbidities were recorded and concluded that the most frequently occurring VCs were ecchymosis, hematoma, and oozing. Age was significantly associated with ecchymosis, whereas hypertension was associated with a decreased level of ecchymosis. Body surface area significantly influenced hematoma formation. Nurses caring for subjects' post-PCIP who are older and have a smaller body surface area may require extra vigilance and tailoring of nursing care to prevent development of VCs.

2.4 COMPLICATIONS OF PTCA

Percutaneous transluminal coronary angioplasty, or PTCA, is a procedure used to treat a variety of heart conditions, including angina, coronary artery disease, and acute heart attack. More than 600,000 angioplasty procedures

are carried out every year in the United States. The procedure is normally uneventful, but in a small proportion of cases, instead of opening the artery it may lead to a complete obstruction causing a myocardial infarction. If this complication occurs, the patient may need emergency coronary artery bypass surgery. A patient agreeing to undergo angioplasty must therefore be made aware of the possibility of going on to surgery because of this or as a result of other complications. (Akhras & Pasha 2001).

MS Lauer (1996), Researcher analyzed 2350 angioplasties performed by 38 physicians over a three-year period. Eight of the physicians were high-volume operators (performing at least 50 procedures per year) and 30 were low-volume operators. Sixty-four percent (1502) of angioplasties were performed by high-volume operators. Emergency CABG occurred in 3.9% of procedures performed by low-volume operators, compared to only 2.1% for high-volume operators. Similarly, significant morbidity occurred in 10.7% of cases by low-volume operators, versus 6.5% for high-volume operators. Although high-volume operators were associated with better outcomes, their patients tended to be older, have more complex procedures, and have more emergency procedures. When only multi lesional procedures were considered, low-volume operators again had higher rates of emergency CABG (4.5% vs. 1.5%) and in-hospital morbidity (12.9% vs. 6.1%). After adjusting for baseline characteristics, low-volume operators generated greater hospital costs and longer stays and he commented that operator experience is associated with lower PTCA complication rates.

The risk of complications occurring after PTCA is fairly low, with risk of emergency bypass at less than 1%, and risk of non-fatal heart attack at 2 to 5%. Up to 5% of patients may experience a sudden vessel closure at the site where the procedure was carried out. Overall the mortality rate following the procedure is less than 1%. If these rates seem high, bear in mind that these are complication risks following heart-related surgery, often on people who have advanced coronary disease. Advances in stent technology and the use of medication helps reduce the risk of complications of PTCA to a minimum. Another possible risk of surgery is vessel damage, caused by over-inflation of the catheter balloon, or the use of a too-large balloon. Small amounts of damage may occur in up to 50% of people, but it is thought that this is normal and not dangerous. However, larger-scale damage can be problematic. (Morton 2004).

People who undergo PTCA routinely undergo several weeks of close follow-up care and testing to ensure they do not suffer complications. Even after this point regular check-ups are continued, as in rare cases stents may cause problems up to four years or more after placement. (Emma Lloyd 2009).

Christopher J. White (2001) conducted a study to understand whether the presence of angiographically identified intracoronary thrombus has been variably associated with complications after coronary angioplasty. Angiography has been shown to be less sensitive than angioscopy for detecting subtle details of intracoronary morphology, such as intracoronary thrombi. The clinical importance of thrombi detectable by angioscopy but not

by angiography is not known. Christopher J. White made a study to understand whether coronary thrombi increase PTCA risk. Percutaneous coronary angiography was performed in 122 patients undergoing conventional coronary balloon angioplasty (PTCA) at six medical centers. Unstable angina was present in 95 patients (78%) and stable angina in 27 (22%). Therapy was not guided by angioscopic findings, and no patient received thrombolytic therapy as an adjunct to angioplasty. Coronary thrombi were identified in 74 target lesions (61%) by angiography versus only 24 (20%) by angiography. A major in-hospital complication (death, myocardial infarction, or emergency bypass surgery) occurred in 10 of 74 patients (14%) with angioscopic intracoronary thrombus, compared with only 1 of 48 patients (2%) without thrombi ($P=.03$). In-hospital recurrent ischemia (recurrent angina, repeat PTCA, or abrupt occlusion) occurred in 19 of 74 patients (26%) with angioscopic intracoronary thrombi versus only 5 of 48 (10%) without thrombi ($P=.03$). Relative risk analysis demonstrated that angioscopic thrombus was strongly associated with adverse outcomes (either a major complication or a recurrent ischemic event) after PTCA (relative risk, 3.11; 95% CI, 1.28 to 7.60; $P=.01$) and that angiographic thrombi were not associated with these complications (relative risk, 0.85; 95% CI, 0.36 to 2.00; $P=.91$) and he concluded that the presence of intracoronary thrombus associated with coronary stenosis is significantly underestimated by angiography. Angioscopic intracoronary thrombi, the majority of which were not detected by angiography, are associated with an increased incidence of adverse outcomes after coronary angioplasty.

Dabrowski M, et al., (1981) conducted a study to understand what are the most possible complications after PTCA between 1981 and 1990, among 714 patients from a total of 756 patients who underwent percutaneous transluminal coronary angioplasty (PTCA) procedures. A total of 52 patients (6.9%) had major in-hospital complications: 5 patients (0.66%) died, Q-wave or non Q-wave myocardial infarction were observed in 13 patients (1.66%) during procedure and in 8 (1%) outside the catheterization laboratory, before discharge. Because of periprocedural occlusion 11 patients (1.5%) were managed with bypass surgery, 8 (1%) had a transient occlusion that was reopened with PTCA. 21 patients (2.8%) were not re-dilated but managed pharmacologically. Dissection, intracoronary thrombus and previous thrombolytic treatment were often associated with occlusion. The risk of dissection was related to lesion morphology. Long-(more than 1 cm) lesion, eccentric stenosis and tortuosity of the vessel segment undergoing dilatation were risk factors for occlusive dissection. There was a high risk of side branch occlusion if its take-off was narrowed and side branch originated from the target lesion. One of the most important risk predictors is the amount of jeopardized myocardium supplied by the target coronary artery. Acute closure of an artery supplying large amount of myocardium may cause abrupt haemodynamic collapse. Hypotension secondary to the artery occlusion may cause a decrease of the flow in the other coronary arteries, leading to cardiogenic shock. Although it is important to note that patients with unstable angina, intracoronary thrombus, long and complex lesion, severe multivessel disease and compromised left ventricular function are at higher risk of acute complication, PTCA is a relatively safe procedure.

Coronary angioplasty in acute myocardial infarction carries a low risk and seems to be beneficial in patients with contra-indications to or failure of thrombolysis. The following complications were observed: 4 coronary artery dissections and haematoma at the site of femoral puncture in patients who had received thrombolytic therapy (10 drained surgically). The hospital mortality was 3% and global mortality after an average follow-up period of 19.6 months was 5%. (Mossard JM, 2005)

The ischemic complications of percutaneous transluminal Between January 1987 and June 1992 among 189 PTCA procedures in a group of 153 patients (127 men, 26 women) aged 28 to 69 years, mean 52.3, 203 coronary vessels were dilated. In 136 pts one vessel was dilated, one vessel with two narrowing were dilated in 16 pts and in 17 pts two-vessel PTCA was performed. Due to restenosis, PTCA was repeated, once in 26 pts, twice in 3 pts and three times in 1 patient. Effective dilatation was achieved in 81.8% of cases and in this number, circumflex and marginal branch of left coronary artery were successfully dilated in 90.7%, left anterior descending in 84.6%, right coronary artery in 84.2% of cases. Attempts to reanalyze these vessels were effective in 52%. There were no lethal complications of PTCA, acute occlusion of artery occurred in 5.9% of dilated vessels. Emergency coronary bypass had to be performed in 5.2% pts due to acute artery occlusion. PTCA supported by surgical stand-by appears to be a safe procedure with high direct effectiveness (Indian heart journal 1993).

Dumont C.J. (2007) conducted a study about the effect of hypertension on vascular complications after percutaneous coronary interventions. This article described a case matched control study of 300 patients undergoing percutaneous coronary interventions in which specific demographic, physician sensitive, and nurse sensitive factors were tested to determine their relative contribution to the incidence of vascular complications. The findings included that patient with a mean systolic blood pressure of 160 mm of Hg or higher were 8 times more likely to have vascular complications.

Ferdandez et al., (2006) conducted a study about persistence of coronary risk factor status in participants 12-18 months after percutaneous coronary interventions. The main objective of the study was to investigate the self reported risk factor status by patients who had undergone PTCA. The researchers identified the most common cardiovascular risk factors were physical inactivity, increased body mass index, high BP and high cholesterol. The investigators concluded that inadequate management of modifiable risk factors among post PCI participants 12-18 months after revascularisation, which highlights a need for tailored secondary prevention intervention to address factors contributing to cardiovascular risk.

W.S. Poston (2004) conducted the study about impact of obesity on disease specific health status after percutaneous coronary intervention in coronary artery disease patients. The objective of the study was whether obesity is a risk factor for poor quality of life or diminished health status 12 months post procedure among PCI patients. The investigators included 1631 patients in

is study and classified as underweight, normal weight and overweight and included obese patients for revascularisation was younger when compared patients in the normal weight range regardless of previous history of vascularization.

Gruberg et al., (2002) conducted a study about impact of obesity on the short term and long term outcomes after percutaneous coronary interventions and concluded that obese patients were significantly younger and had consistently worse baseline clinical characteristic than normal or overweight patients, with a higher incidence of hypertension, diabetes, hypercholesteremia and smoking history.

Chang FR et al., (2004) conducted a study about adverse effects of psychological stress before and after percutaneous coronary intervention. The investigators included 320 patients for this study, who underwent scheduled coronary interventions for the first time. All the patients were examined by symptoms check list-90 with in 24 hours before procedure. Before coronary catheterization, factorial scores of somatization were higher than normal in 2%. After procedure 58% have the risk of hypertension, diabetes and increased creatinine level. The conclusion of the study was increased somatic parameters highlights the risk of cardiovascular complications.

S.Wang et al., (1999) studied about the effect of physician office visit on HD risk factor modification as a part of worksite cholesterol screening programme. In this study the researchers assessed the impact of physician

office visit after a worksite cholesterol screening on self reported changes in diet, weight loss, exercise and smoking. The investigators concluded that most individuals with elevated cholesterol level had other prevalent self reported CHD with risk factor and the individuals showed only a modest change in the risk factors compared with those who did not have follow up physician visit. These findings indicate that the follow up cholesterol related physician visit had little added clinical benefits over the screening intervention alone.

T.J.Bowker (1996) conducted a survey about the survey of the potential for the secondary preventions of coronary disease. The main objective of the study was to measure the potential for the secondary prevention of coronary disease in United Kingdom. The findings of the study was there is a considerable potential to reduce the risk of further major ischemic event in patients with established coronary disease. This can achieve by effective life style intervention, the management of blood pressure and cholesterol, and the appropriate use of prophylactic drugs.

Galassi.A.R (2005) conducted a study about follow up of patients undergoing PCI. According to the researchers findings angiography systematic follow up although traditionally considered the gold standard of restenosis and disease progression. The follow up following PCI should always take into consideration of clinical characteristics of the patients, the angiographic characteristics, the procedural characteristics and symptoms and physical

activity of the patients. All these parameters will assess the risk of the patients and will help to choose a functional appropriate follow up protocol.

Theilmeier et al., (2002) conducted a study and concluded that hypercholesterolemia impairs vascular remodeling of balloon treated coronary arteries after angioplasty by decreasing the VSMC (Vascular Smooth Muscle Cells) and collagen accumulation of the site of the injury. The data suggest that this decrease can due to macrophage included matrix degradation and reduced VSMC adhesion and to impaired VSMC migration oxidized LDL mimics the inhibitory effect of hypercholesterolemic serum.

2.5 SUMMARY

Review of literature gives a brief idea about the importance of patient education about the various kinds of diagnosis and treatment and its effectiveness. Through patient education we can improve the knowledge and satisfaction of clients, and it also helps to create a better view among the public about the health care providers.

2.6 KEY ELEMENTS

Serial no	Key words	Frequency
1	PTCA	28,119
2	Patient education studies	11,539
3	Patient education studies –PTCA	40
4	Incidence of coronary artery disease in India	394
5	Incidence of PTCA in India	28
6	After care in the ICU after cardiac catheterization	14
7	Pre procedural preparation for PTCA	112
8	Complications of PTCA	7,858

CHAPTER - 3

METHODOLOGY

3.1 INTRODUCTION

Methodology includes research design, setting of the study, population, sample and sampling technique, time and duration of the study pilot study ,data collection process, plan of data ,analysis and summary .

3.2 RESEARCH DESIGN

To accomplish the objectives of the study an after –only study or post test only study design is used for data collection and analysis of the data. In order to assess the knowledge about hospitalization for CAG and PTCA data were collected from patients by self prepared questionnaire including 10 questionnaire based on various aspects such as meaning of CAG and PTCA, pre procedural preparations needed ,about the duration of the procedure, complications etc. Each correct answer carries one mark and the knowledge is assessed by the total knowledge score in each group .

3.3 SETTING OF THE STUDY

This study was conducted in cardiology medical units in sree chitra, which is an institute of national importance and is specialised for interventional procedures in cardiology.

3.4 POPULATION

All patients admitted to CACCU and CMWRD for CAG and PTCA .

3.5 SAMPLE AND SAMPLING TECHNIQUE

This study constituted 50 patients who are undergoing CAG /PTCA in SCTIMST. Patients admitted for the procedures are selected as random sample method. Data collected from 25 patients after the procedure based on a questionnaire (control study) in the post procedural period - one hour after the sheath removal. Then from another 25 patients in the same way who have got individualized instructions based on an educational pamphlet in the preprocedural period. (Interventional group)

3.6 SAMPLING CRITERIA

INCLUSION CRITERIA

- Patients who are willing to participate
- All male and female patients before and after the procedures.
- Patients who knows Malayalam and who are haemodynamically stable .

EXCLUSION CRITERIA

- Patients who are not willing to participate .
- Who are not haemodynamically stable.
- Who are mentally retarded and deaf and dumb .

3.7 TIME AND DURATION OF THE STUDY

The duration of the study was 3 months (1.8.2009 to 31.9.2009.) Data collected at the period of 1 month. The time period for data collection for each patient was maximum of 30 minutes

3.8) DATA COLLECTION PROCESS

This interventional study constituted 50 patients who are undergoing CAG /PTCA in SCTIMST. This study constituted 50 patients who are undergoing CAG /PTCA in SCTIMST. All patients admitted for the procedures are

selected as random sample method. Data collected from 25 patients after the procedure based on a questionnaire (control study) in the post procedural period - one hour after the sheath removal. Then from another 25 patients in the same way who have got individualized instructions based on an educational pamphlet in the preprocedural period. (Interventional group)

3.9 DESCRIPTION OF THE TOOL

Part 1— This part contains items such as patient's name, age, sex, education and hospital number, diagnosis and undergone procedure.

Part II — This part contains questions.

Part III — This part contains an educational pamphlet which was used to give health education to interventional group .

3.10 PILOT STUDY

After obtaining consent from the authorities a pilot study was conducted among 10 patients to establish the reliability and validity of the tool and to test the feasibility and practicability of the whole research design .The period of study was 5 days (22.9.2009-27.9.2009)

3.11 PLAN OF ANALYSIS

The researcher decided to analyses the data in terms of the frequency and percentages and presents that in terms of bar diagram ,pie diagram and tables.

3.12 SUMMARY

This chapter deals with the introduction ,research design , setting of the study, population, sample and sampling technique ,time and duration of the study, development of a collection tool ,pilot study ,data collection process and plan of analysis.

CHAPTER - 4

ANALYSIS AND INTERPRETATION OF DATA

4.1 INTRODUCTION

Analysis is categorizing, ordering, manipulation and summarizing the data to an intelligible and interpretable form so that the research problem can be studied and tested including the relationship between the variables. (Kerlinger 1986).

This chapter deals with the analysis and interpretation of data collected in the present study. Data collected from 50 patients who are undergoing either CAG /PTCA in the SCTIMST .

The data collected were analyzed by statistical package of social sciences based on stated objectives (Epi Info) and presented under the following sections.

4.2 SECTION I — Analysis according to socio demographic data of 50 samples, along mean standard deviation and p value of each group.

4.3 SECTION II — Analysis according to clinical data

4.4 **SECTION III** — Analysis according to knowledge level on various questions.

Variables taken for this study includes age, sex, educational level, diagnosis and the source of knowledge, undergone procedure.

4.2 **SECTION I**

Socio demographic data -In this section an attempt is made to study the demographic characteristics of subjects Information collected on age and sex were analyzed using percentage analysis method .

Analysis and interpretation of data

Section 1 — Analysis according to socio demographic data of 50 samples

Table 4.2(a) Distribution of samples according to age difference

Age	Control group f(%)	Interventional group f(%)
20-30	2(8)	2(8)
30-40	3(12)	6(24)
40-50	4(16)	6(24)
50-60	10(40)	6(24)
60-70	5(20)	5(20)
70-80	1(4)	0
Total	25(100)	25(100)

Graph between the age and percentage

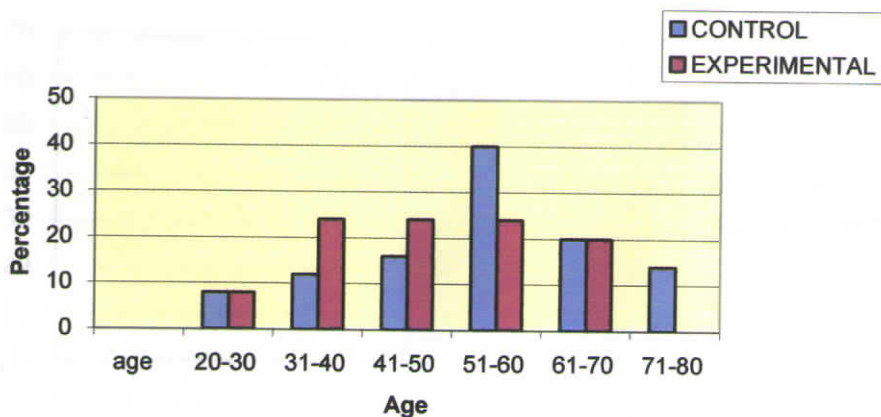


Fig 4.2(a)

From this we can understand that the age in the control group ranges from 24-78 with a mean of 52.88 (12.85) and mode of 58 median 55 and that of the interventional group ranges from 23-68 with a mean of 47.44 (12.29) and mode of 39, median of 48. There is no statistically significant difference between the ages in the two groups ..

Table 4.2 (b)Distribution of samples according to the sex .

Sex	Control f(%)	Experimental f(%)
Male	15(60)	15(60)
Female	10(40)	10(40)
Total	25(100)	25(100)

Graph between the Sex and Percentage

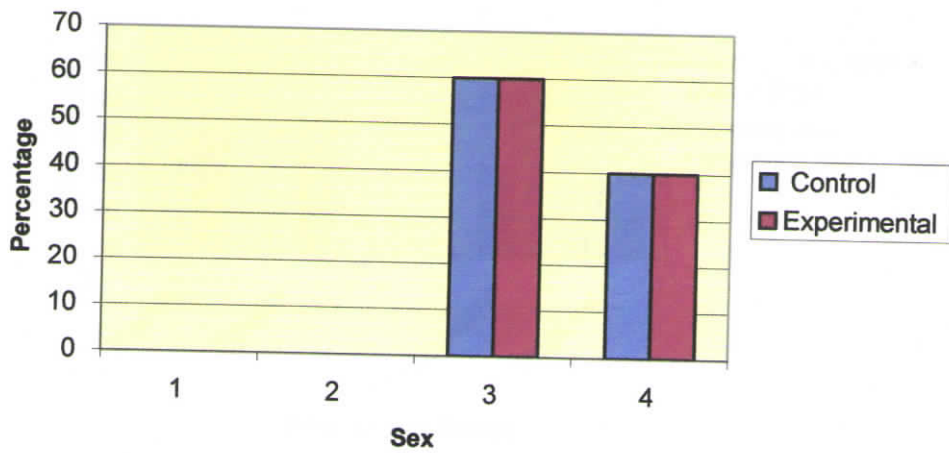


Fig4.2 (b)

Table 4.2(c) Distribution of samples according to the educational level

Educational status	Control f(%)	Experimental f(%)
Illiterate	6(24)	3(12)
Primary	8(32)	9(36)
Secondary	6(24)	12(48)
Professional	5(20)	1(4)
Total	25(100)	25(100)

Graph between Educational Status and Percentage

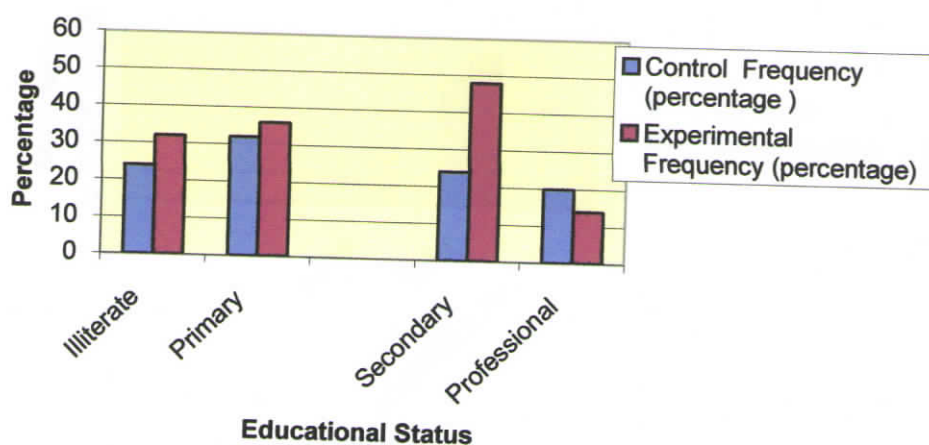


Fig 4.2(c)

4.3 SECTION II

Table 4.3(a) Distribution of samples according to Diagnosis

Diagnosis	Control group f(%)	Experimental group f(%)
AWMI	5(20)	5(20)
IWMI	11(44)	13(52)
UNSTABLE ANGINA	9(36)	8(32)
Total	25(100)	25(100)

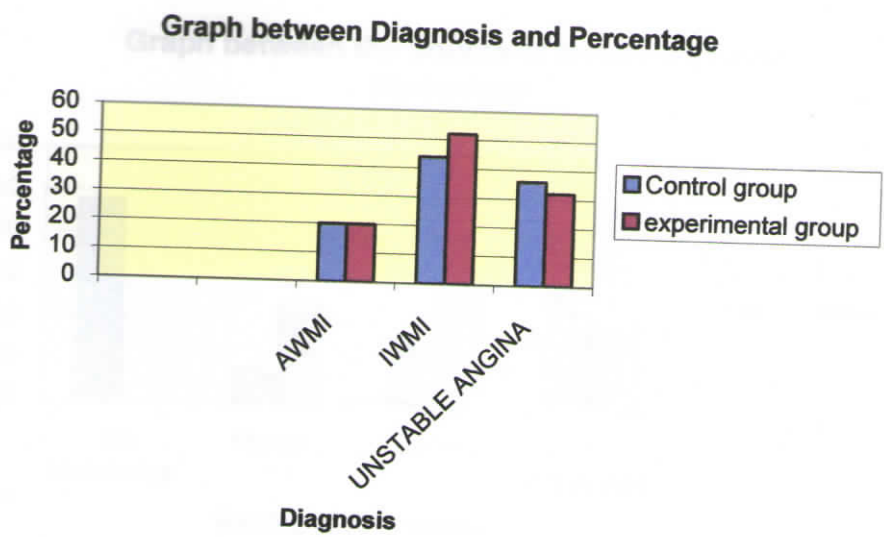


Fig 4.3(a)

4.4 SECTION III

Table 4.4(a) Distribution of Samples according to the source of Knowledge

Source of knowledge	Control group f(%)	Experimental Group f(%)
No knowledge	12(48)	0
Media	2(8)	6(24)
Reading	4(16)	7(28)
From family and friends	7(28)	12(48)
Total	25(100)	25(100)

Graph between the Source of knowledge and percentage

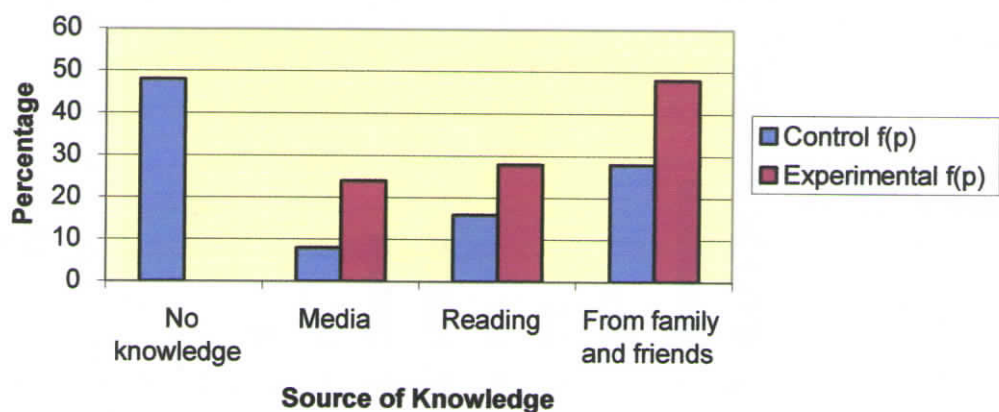


Fig 4.4(a)

Table 4.4(b) Distribution of samples according to their total knowledge

Total knowledge score	Control group f(%)	Experimental group f(%)
1	0(0)	0
2	1(4)	0
3	2(8)	0
4	6(24)	0
5	7(28)	0
6	2(8)	0
7	3(12)	0
8	3(12)	1(4)
9	1(4)	9(36)
10	0(0)	15(60)

Graph between the Total Knowledge and Percentage of Samples

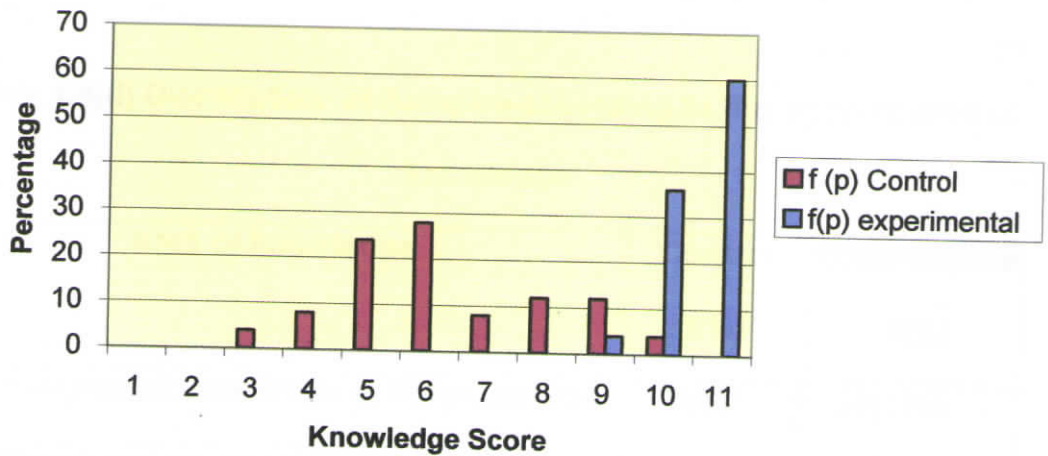


Fig 4.4(b)

Table 4.4(c)

Mean Standard Deviation and p value of each group based on knowledge score

Group	Mean (standard deviation)	p value
Control	5.48(1.69)	0.000
Interventional	9.52(0.59)	

From this we can understand that knowledge ranges from 2 to 9 in the control group with a mean of 5.48(1.69) mode of 5 and median of 5 and that of the interventional group ranges from 8 to 10 with a mean of 9.52 (0.59) and a mode 10, median 10 and the knowledge score has increased in the interventional group compared to control group and the p value of the study

$p < 0.005$ which shows that a statistically significant difference exists between them and the patient education was effective.

Table 4.4(d) Distribution of Samples according to the specific area of knowledge

Area of knowledge	Control f(%)	Experimental f(%)
Previous information about the procedures	13(52)	25(100)
Meaning of angiogram	8(32)	25(100)
Meaning of angioplasty	7(28)	23(92)
The matter not necessary for CAG/PTCA	17(68)	25(100)
Time duration of the procedures	15(60)	25(100)
The reason for not to bend the leg for 6 hours after the procedures	17(68)	25(100)
The main complication of CAG/PTCA	15(60)	24(96)
The level of consciousness during the procedure (yes or No type)	16(64)	25(100)
The possibility of restenosis after stent placement followed by Angioplasty (yes or No type)	5(20)	16(64)
The need for testing the functioning of kidney before the procedure (yes or No type)	24(96)	25(100)

Graph between the Area of Knowledge and Percentage

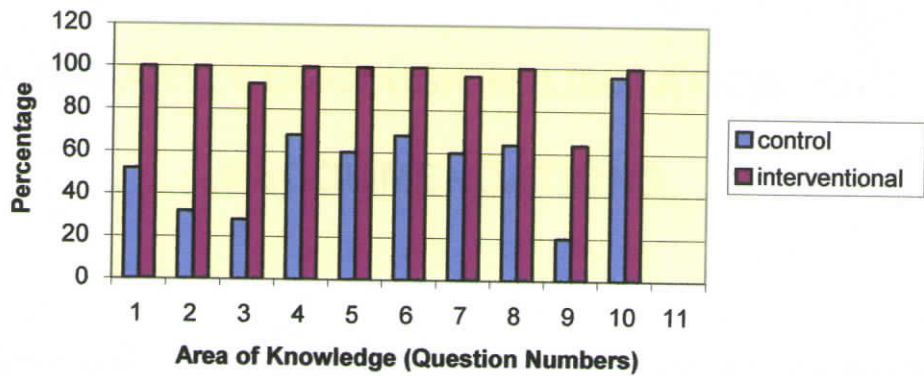


Fig 4.4(d)

From this we could understand that knowledge level in the interventional group has increased and the level of knowledge is lower among the samples (both in control and interventional) about the possibility of restenosis after stenting which indicates the need for better health education and to remove that misconception .

4.5 SUMMARY

As a conclusion in this study, it is evident that most of the samples taken in this study are males, and between the age group of 50-60 years, having secondary secondary school level education ,and with a diagnosis of IWMI and knowledge level in the interventional group is much more compared to control group and there is a statistically significant difference exists between them .

CHAPTER - 5

SUMMARY, CONCLUSION, LIMITATION, AND RECOMMENDATIONS

This chapter gives a brief account of the present study including conclusion drawn from the findings are possible applications of the result. Recommendations for the future result and suggestions for improving the present study are also included.

5.1 SUMMARY

This study was under taken to assess the effectiveness of individualized instructions about hospitalization among patients undergoing CAG /PTCA , SCTIMST, Thiruvananthapuram .

The specific objectives of this study are

-) To assess the level of knowledge about hospitalization among patients under going CAG /PTCA.
-) To under stand the effectiveness of individualized instructions by an educational pamphlet about hospitalization among patients undergoing CAG /PTCA.
-) To compare the level of knowledge between the two groups with each variables .

(variables taken for this study includes age, sex, educational level, diagnosis, source of knowledge and undergone percentage)

The Questionnaire prepared containing 10 Questions based on the various aspects of the hospitalisation. Pilot study was done prior to main study. The sample of the study was 60 including pilot study. The obtained results were analyzed using Epi info. Bar diagrams were utilised to illustrate the findings of this study.

5.2 MAJOR FINDINGS OF THE STUDY

The study reveals that percentage of males were greater than females who have undergone CAG /PTCA. The maximum number of patients coming under the age group of 50-60. The study reveals that IWMi is the main indication for PTCA compared to other diagnoses. Knowledge ranges from 2 to 9 in the control group with a mean of 5.48(1.69) mode of 5 and median of 5 and that of the interventional group ranges from 8 to 10 with a mean of 9.52(0.59) and a mode 10 ,median 10 , and there is a statistically significant different occurring between these two groups with a p value of <001. knowledge level in the interventional group has increased and the level of knowledge is lower among the samples (both in control and interventional) about the possibility of restenosis after stenting which indicates the need for better health education and to remove that misconception.

5.3 DELIMITATIONS

The study was limited to SCTIMST, Thiruvananthapuram. The study was conducted among a small group of population who have undergone CAG/PTCA. Each patient is assign to the questions only for one time that is, preprocedural and post procedural follow up of same individual patient is not done and underlying ones are excluded from the study

- 1) Patients who do not know Malayalam .
- 2) Patients who are haemodynamically unstable and not willing to participate.
- 3) Patients who are physically and mentally handicapped.

More over it is an after-only type design i.e. not a true experimental study.

5.4 CONCLUSION

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

With the limited number of patients, it is not possible to generalize the findings. Therefore studies using more number of patients may be useful to validate the findings. Finally, from the conducted study we could conclude that patient education was more effective and that group patients were more satisfied compared to other group.

5.5 RECOMMENDATIONS

The following recommendations were based on the present study

- Similar studies can be conducted in other health care institutions.
- By using some more samples, we can get more appropriate results.
- The present study shows that patients are having more lack of knowledge about the possibility of restenosis after stenting followed by PTCA. So more attention is needed in that particular area during selection and getting consent from patients for the procedures.

5.6 DISCUSSION

There are many studies which emphasize the importance of patient education. The present study is to assess the effectiveness of individualized instruction about hospitalization among patients undergoing CAG/PTCA by using a self-prepared questionnaire of 10 questions among 50 patients by allocating them into two different groups: control and experimental (to whom we have given individualized instruction prior to the procedure). It was a study of design: a post-test only or an after-only study. Finally, we can conclude that knowledge in the interventional group has increased compared to the control group and there is a statistically significant difference between them (p value ≤ 0.005) which indicates that patient education was effective and it also again emphasizes that appropriate and timely health education about the

procedures will help in smooth – patient recovery and and secondary prevention of diseases .

It is comparable to the study done by Enzenhofer et al., (2004), who had conducted a study to compare the use and effectiveness of computer based visualization opposed to standardized conversation for providing patients with information of forth coming procedures. (coronary catheters or endoscopic procedures) and concluded that patients of the visualization group were more satisfied with the conversation and were statistically more significant. It is also comparable to the study done by Amodio R et al., (2009) who conducted a study to understand the effectiveness of an education programme led by nurses for patients admitted to hospital with coronary heart diseases (CHD), by the nurses of cardiology division of the Desio Hospital who have held regular health education meetings for inpatients with CHD and their relatives and finally concluded that patient education was significant and it increased the knowledge and satisfaction of patients . It is also comparable to the study done by Leigh R. Tooth et al (2008) who concluded that a pre-procedural education/counselling program can improve knowledge about the reduction of the coronary risk factors. Finally concludes that since patients are the most important persons in the hospital, proper and timely health education is necessary prior to any procedure .

REFERENCES

1. American Heart association, (1999) Heart and stroke statistical update, Dallas.
2. Amodeo R et al., (2004) How to increase patient knowledge of their coronary artery disease; impact of an educational meeting led by nurses Italian Heart journal, September 123(1); 1521-1529.
3. Beattie and Geden et al., (1990) Reducing pain and discomfort following PTCA; Dimensions of critical care nursing; 9(3) 127-128.
4. Beckerman A et al., (1995) Cardiac catheterization-patient perspective; 24(3);213-219.
5. Benson LM et al., (2005) significant difference between three methods of sheath removal; Heart and Lung Mar-Apr 34(2);115-121.
6. Braunwald E (1993) The open-artery theory is alive and well-again. N Engl J Med : 329; 1650-1652.
7. Brezynskie H (1998) Identification of the perceived learning needs of balloon angioplasty patients Can J Cardiovasc Nurs;9(2);814-818.
8. Charlson (2002) improving health behaviors and outcomes after PTCA; using economic theory to inform intervention; Health Education Research, October, 17(5) 606-618.
9. Christopher J white (1996) Coronary thrombi increases the PTCA risk; Circulation 93(1) 253-258.)
10. Dabrowski M et al (2001) Complications of percutaneous trans luminal coronary angioplasty; 13.5 years of Follow up ;Journal of clinical and Basic Cardiology 4(4) 285-288.

11. Dolomon s (1994) continuity of care for patients following PTCA; the role the angioplasty programme nurse; Can J Cardiovasc; 5(4);25-28.
12. Dumont C.J (2007). Blood pressure and risk of vascular complications after percutaneous coronary intervention; Dimens Critical Care Nursing, 26(3), 121-127.
13. 13)EuroaspireIII(2009) A Survey on the Life style , and risk factors and use of cardio protective drug therapies in coronary patients from 22 European countries. Eur J of cardiovascular prevention and rehabilitation , 16(2) April 123-124.
14. ElsievierB(1997) Effectiveness of patient education in Hungarian Heart failure out patient clinic; European J of cardio vasc Nsg vol (7) s42—s43.
15. Elsevier B.V (2007) Emergency department education improves the patient knowledge of risk factors of CAD ,but not the accuracy of their own risk perception ;Eisevier inc June 44(6) 520-525.
16. Emma L loyd (2009) Risk and complications of PTCA ; July 84(5) 215-218.
17. Enzenhofer et al (2004)Improvement of the educational process by computer –based Visualization of
18. Procedures ; Randomized controlled Trial Journal of Medical Internet Research , June 6(2); 1-2.
19. Faris J et al., (1990) The effect of percutaneous transluminal coronary angioplasty on quality of life; prog Cardiovasc Nurs; Oct-Dec;5(4):132-40

20. Fuster et al., (1992) Clinical Pathological correlations of coronary artery disease progression and regression; *Circulation* 86 (SupplIII);III-I.
21. Higgjns M (2001) *Preparing for coronary angioplasty: the patients' experiences*; *Aust Crit Care*14(2):64-70.
22. Fernandez.R.S et al (2006) Persistence of coronary risk factors status in participants 12-18 months after PCI; South Western Sydney center for applied Nursing Research, 21(5), 379-382.
23. Finkel meier (2000) Coronary artery diseases; *Cardiothoracic and surgical nursing* ed (2) 5-20.
24. Galassi.A.R. et al. (2002 June), Follow up of patients undergoing PCI; *Ital Heart Journal* , 6(6), 530-539.
25. Gersh BJ , Braunwald E, Rutherford JD (1997) Chronic coronary artery disease, cardiovascular medicine, ed 5., Philadelphia ,WB Saunders .
26. Gheorghiade M,Bonow RO (1998) Chronic Heart Failure in the United States ; A manifestation of coronary artery diseases 97—282.
27. Hortwitz et al (2009) patient information leaflets seen through the eyes of patients in a general practice Feb 16;171(8);599-602.
28. Jaspers, Luc et al.,(2003) Immediate sheath removal after PCI using a Femostop is feasible and safe;*Acta Cardiol* 58;535-537.
29. Krantz M J et al., (2004) Impact of a Cardiac Risk Reduction Program in Vulnerable Patients Hospitalized with Coronary Artery Diseases; Health education through guide line based pharmacotherapy; *Am J of clinical pharmacotherapy*; June 24(6) 768-775.

0. Kumar Barooah (2003) The prevalence of cardiovascular diseases especially coronary disease of INDIA www.assamtribune.com/1309/horizon2.html.
1. Gaw B (1992) Motivation to change life style following PTCA ; Dimensions of critical care 11(2);68-74.
2. Gershan J et al (1984) Percutaneous transluminal coronary angioplasty ;implications for nursing ;Focus on critical care Aug 11(4);28-35.
3. Lincoff AM (1997) Interventional catheterization techniques, Heart disease, A Text book of cardiovasc medicine, ed 5, Philadelphia, WB saunders .
4. Linda M et al., (2002) Capping Arterial Sheaths in Patients Undergoing Percutaneous Coronary Intervention: Evidence-Based Practice ; Critical Care Nurse ;22: 64-68.
5. Gulanick M et al., (1997)patients responses to the angioplasty experiences; A qualitative study A m J Crit care; 6(1);25-32.
6. Gruberg L et al., (2002 Feb). The impact of obesity on the short term and long term outcomes after percutaneous coronary interventions Am J Cardiology, 39(4),578-584.
7. Holmboe et al., (2008) Perceptions of Benefit and Risk of Patients Undergoing First -time Elective Percutaneous Coronary Revascularisation; Int J of Cardiovascular Imaging Vol 24(6) 567-575.
8. Joyce et al., (2003) The outcome of CAD in community ; Hungarian studies of the heart , may 24(9);218.

9. Limbruno U et al., (2008) usefulness of an audiovisual support to informed consent before percutaneous coronary intervention procedures *G Ital Cardiol* (Rome) Oct;9(10):726-732.
0. Leigh R. Tooth et al., (2008) Pre-admission education/counselling for patients undergoing coronary angioplasty: impact on knowledge and risk factors ; *Australian and New Zealand Journal of Public Health* Vol (22) 583-588.
1. Joyce et al., (2003) The outcome of CAD in community ; *Hungarian studies of the heart* , May 24(9);218.
2. Kerlinger (1986) *The theoretic approach of nursing research*, Practice Hall of India Private Limited ,120-146.
3. Mehta JL et al., (1998) Interactive role infection ,inflammation and traditional risk factors in atherosclerosis and coronary artery diseases; *A m J Cardiology* 31;1217.
4. Morton (2007) *Interventional procedures; Critical care nursing A Holistic Approach* ed (8) 306—324.
5. Mossard J M et al., (2005) Long-term clinical outcomes after rescue angioplasty are not different from those of successful thrombolysis for acute myocardial infarction; *European heart Journal* ;26(18) 1831-1837.
6. Lauer MS et al., (1996) PTCA Complications related to Operator Experience; *J Watch Cardiology* February 1577 331-336.
7. Peterson M (1991) Patient anxiety before Cardiac catheterization ; an interventional study *Heart and Lung* ;20; 643-647.

48. Poston W.S. et al., (2004) Impact of obesity on disease specific health status after PCI in coronary disease patients; *Int J Obes Relat Metab Disorder*, 28(8),1011-1017.
49. Qiu.Y.G et al., (2003, March). Physiologic status and their influencing factors in patients suspected of coronary disease before and after coronary catheterization. *Department of Cardiology*, 24(3), 224-228.
50. Schoen FJ (1997) Pathologic conditions in the surgery of heart adult heart disease ,ed (2)Philadelphia .
51. Scholte et al., (2007) Importance of risk factor management in patients with coronary heart diseases ; 7th National congress juni-july in Netherlands .
52. Spencer FA, Gold berg RJ, Becker RC, et al., 1998; Seasonal distribution of acute myocardial infarction in the second national registry of myocardial infarction *Am J Cardiology*, December 41((4) 213-218.
53. Wang J.S. et al., (1999) The effect of physician office visit on CHD risk factors modification as part of a work spite cholesterol screening programme; *Prev.Med*, 28(3), 221-228.
54. Theilmeier G et al., (2002) cholesterol Impairs vascular remodeling after Coronary angioplasty. *Cardiovascular and respiratory system* 55(2),385-395 .
55. Wong M.S. (2006) Changes of health related quality of life following percutaneous coronary interventions. *Int.J. Nur. Studies*, 44(8), 1334-1342.

56. Yusuf et al., (2001) CAD—A global burden; AMJ Cardiology, December 42(4);.516-518.
57. Emel Yilmaz (2008) Minimizing short-term complications in patients who have undergone cardiac invasive procedure: a randomized controlled trial involving position change and sandbag; The Anatolian Journal of Cardiology (Dergisi) February 213-215.

: പൂജ

: പ്രത്യയ

: ഈട് ട്രൈഗ്രാഫ്

: റെസഡ

ഡിപ്രെഷൻ ഓഡിറ്റിംഗ് ട്രൈഗ്രാഫ് ഈട് ട്രൈഗ്രാഫ് ഡിപ്രെഷൻ
നാലാമത്ത് ട്രൈഗ്രാഫ് ഡിപ്രെഷൻ ഡിപ്രെഷൻ ഡിപ്രെഷൻ / ഡിപ്രെഷൻ
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സമാപനം

ප්‍රජාතන්ත්‍රවාදී ජනතාධිපතිවාදයේ මූලධර්මයන් අනුගමනය කළ යුතු බවට
 අපගේ සමස්ත ජනතාවගේ අවධානය යොමු කළ යුතු බවට අපගේ අදහස
 ප්‍රකාශ කළෙමු.

1. മാധ്യമങ്ങൾ വഴി
2. വായനയിൽ നിന്ന്
3. മറ്റുള്ളവരിൽ നിന്ന് പറഞ്ഞുകേട്ടറിയാം.

2. ആൻജിയോഗ്രാം എന്ന പരിശോധനാ രീതിയെ കുറിച്ച് നിങ്ങൾ എന്താണ് മനസ്സിലാക്കിയിരിക്കുന്നത് ?

- a രക്തക്കുഴലുകളുടെ തടസ്സം സ്ഥിരമായി മാറ്റുന്നു.
- b ഇത് ഒരു താക്കോൽ ദ്വാര ശസ്ത്രക്രിയാ രീതിയാണ്
- c രക്തക്കുഴലുകളുടെ യഥാർത്ഥ സ്ഥിതി മനസ്സിലാക്കുന്ന പരിശോധനാ രീതി
- d ഹൃദയം തുറന്ന് ചെയ്യുന്ന ഒരു പരിശോധനയാണിത്.

3. ആൻജിയോപ്ലാസ്റ്റി എന്ന ചികിത്സ രീതികൊണ്ട് എന്താണ് ഉദ്ദേശിക്കുന്നത്.

- a ഹൃദയത്തിലെ രക്തക്കുഴലുകളുടെ തടസ്സം കണ്ടുപിടിക്കുന്നു
- b ഹൃദയത്തിലെ രക്തക്കുഴലുകളുടെ തടസ്സം സ്ഥിരമായി കണ്ടുപിടിക്കുന്നു
- c ഹൃദയത്തിലെ രക്തക്കുഴലുകളുടെ തടസ്സം ഭാഗികമായി മാറ്റുന്നു
- d ഹൃദയത്തിലെ രക്തക്കുഴലുകളിലെ കൊഴുപ്പ് പൂർണ്ണമായി മാറ്റുന്നു

4. താഴെ പറയുന്നവയിൽ ആൻജിയോഗ്രാം / ആൻജിയോപ്ലാസ്റ്റിക്ക് മുമ്പ് പ്രധാനമായും ചെയ്യേണ്ടതല്ലാത്ത കാര്യമെന്താണ് ?

- a രക്തപരിശോധനയും മൂത്രപരിശോധനയും
- b സമ്മത പത്രം ഒപ്പിട്ടുകൊടുക്കൽ
- c ഹൃദയത്തിന്റെ സ്കാനിങ്ങ് (സി.ടി., എം.ആർ.ഐ.)
- d അണുവിമുക്തമാക്കിയ ചർമ്മഭാഗവും നിരാഹാരവും

5. ആൻജിയോഗ്രാഫി ചെയ്യുന്നതിനു വേണ്ടി രോഗി കാത്ത് ലാബിൽ ഏകദേശം എത്രനേരം മലർന്ന് കിടക്കേണ്ടി വരും.

- a 1 - 2 മണിക്കൂർ

രീയം / ശ്രീ

കുമാരൻ

10. ആനയെക്കുറിച്ച് എഴുതിയ കവിതയുടെ പേര് എന്താണ്?

രീയം / ശ്രീ

ആനയെക്കുറിച്ച്

9. ആനയെക്കുറിച്ച് എഴുതിയ കവിതയുടെ പേര് എന്താണ്?

രീയം / ശ്രീ

ആനയെക്കുറിച്ച്

8. ആനയെക്കുറിച്ച് എഴുതിയ കവിതയുടെ പേര് എന്താണ്?

d ആനയെക്കുറിച്ച്

c ആനയെക്കുറിച്ച്

b ആനയെക്കുറിച്ച്

a ആനയെക്കുറിച്ച്

എന്താണ് ആനയെക്കുറിച്ച്?

7. ആനയെക്കുറിച്ച് എഴുതിയ കവിതയുടെ പേര് എന്താണ്?

d ആനയെക്കുറിച്ച്

c ആനയെക്കുറിച്ച്

b ആനയെക്കുറിച്ച്

a ആനയെക്കുറിച്ച്

കാണുക.

6. ആനയെക്കുറിച്ച് എഴുതിയ കവിതയുടെ പേര് എന്താണ്?

d 4 - 5 മണിക്കൂർ

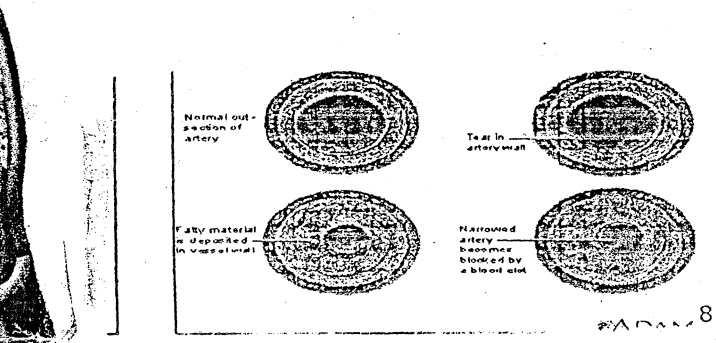
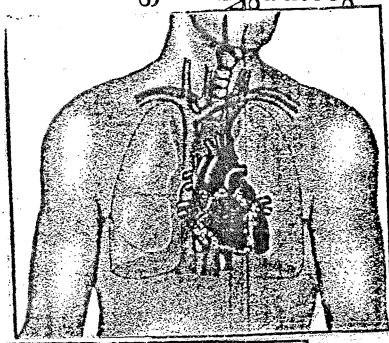
c 3 - 4 മണിക്കൂർ

b 2 - 3 മണിക്കൂർ

രോഗി ആൻജിയോഗ്രാം എന്ന പരിശോധനയെക്കുറിച്ചും ആൻജിയോപ്ലാസ്റ്റി എന്ന രീതിയെക്കുറിച്ചും നിങ്ങളെ ബോധ്യപ്പെടുത്താനായിട്ടാണ് ഈ ലഘുലേഖ തയ്യാറാക്കിയത്.

മുൻ ശരീരത്തിലെ ഏറ്റവും പ്രധാനപ്പെട്ട അവയവങ്ങളിലൊന്നാണ് ഹൃദയം. ശരീരം എല്ലാ ഭാഗങ്ങളിലേയ്ക്കും യഥാസമയം ആവശ്യാനുസരണം രക്തം എത്തിച്ചുകൊടുക്കുവാൻ ഹൃദയമാണ്.

പ്രതി ഹൃദയത്തിലെ രക്തക്കുഴലുകളെ സാരമായി ബാധിക്കുന്ന സുഖം ഉള്ളതായി കണ്ടുവരുന്നു. ഇവരിൽ ഹൃദയാഘാതം സംഭവിക്കാനുള്ള സാധ്യതയുണ്ട്.



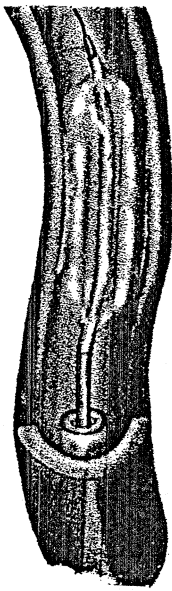
അടിഞ്ഞു കയറിയ സാധാരണ രക്തക്കുഴലും ചുരുങ്ങിയ രക്തക്കുഴലും

എക്സ്-റേ പരിശോധനയിലൂടെ ഈ രക്തക്കുഴലുകൾ ദൃശ്യമാകാത്തതിനാലാണ് രോഗി ആൻജിയോഗ്രാം ആവശ്യമായി വരുന്നത്.

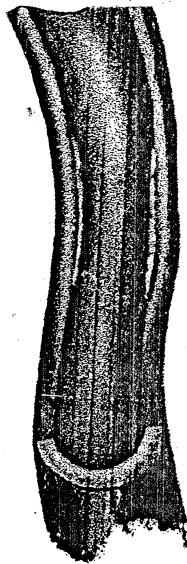
യാത്രാ

വിവിധ രക്തക്കുഴലുകൾ പരിശോധിക്കുന്നതിനും രോഗകാരണവും അവയുടെ സ്ഥിതിയും മനസ്സിലാക്കുന്നതിനും വേണ്ടി ചെയ്യുന്ന പരിശോധനാ രീതിയാണിത്. കയിലേയോ കാലിലേയോ രക്തക്കുഴലിൽ ഒരു കത്തീറ്റർ (ട്യൂബ്) കടത്തിവിട്ട് രക്തക്കുഴലിന്റെ സ്ഥിതി പരിശോധിക്കുവാൻ സാധിക്കും. തുടയിലെ പ്രധാന രക്തധമിയിൽ കത്തീറ്റർ ഹൃദയത്തിലെ രക്തക്കുഴലുകളിൽ എത്തിക്കുന്നു. കത്തീറ്റർ കടത്തുന്ന വേദനയില്ലാതാക്കാൻ വേണ്ടി മരുന്ന് കുത്തിവെച്ച് മരവിപ്പിക്കുന്നു. ഒരു മരുണിന്റെ സാധ്യത അല്ലെങ്കിൽ ഡ്രൈ സഹായത്താൽ രക്തക്കുഴലുകളുടെ ചിത്രങ്ങൾ എക്സ്-റേ എടുക്കുന്നു. ഇങ്ങനെ എടുക്കുന്ന ചിത്രങ്ങൾ പിന്നീട് വിശദമായി പഠിച്ച് രോഗം തിരിച്ചറിയുന്നു. ചിത്രങ്ങൾ എടുത്തുകഴിഞ്ഞതിനുശേഷം കത്തീറ്റർ (ട്യൂബ്) പുറത്ത് നീക്കുകയും ആ ഭാഗത്ത് വിരൽ കൊണ്ടമർത്തി രക്തസ്രാവം തടയുകയും ചെയ്യുന്നു. രക്തക്കുഴലിലൂടെ നീക്കം ചെയ്ത മുറിവുണ്ടാക്കിയ ഭാഗം നന്നായി വെച്ചുകെട്ടി രോഗിയെ വാർഡിൽ കൊണ്ടുപോകുന്നു ചുരുക്കത്തിൽ ഇതാണ് ആൻജിയോഗ്രാം എന്ന പരിശോധന.

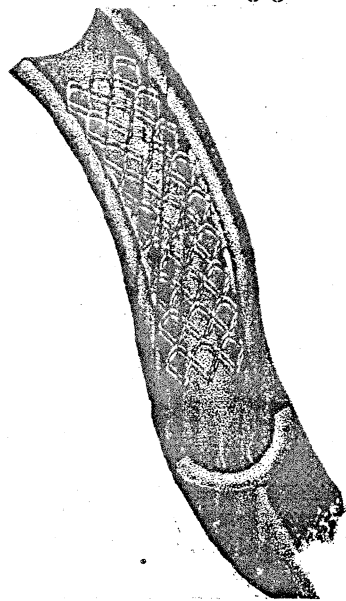
ആർജിയോപ്ലാസ്റ്റി തടസ്സം ഉള്ള രക്തക്കുഴലുകളിലേയ്ക്ക് അറ്റത്ത് ബലൂൺ ഘടിപ്പിച്ചിട്ട് കത്തിവിട്ട് തടസ്സമുള്ള ഭാഗത്ത് കോൺട്രാസ്റ്റിന്റെ സഹായത്തോടെ ബലൂൺ വിട്ട് തടസ്സം മാറ്റുന്നു. ചിലരിൽ വീണ്ടും വരാൻ സാധ്യത ഉള്ളതിനാൽ സ്റ്റെന്റ്



ബലൂൺ ഉപയോഗിച്ച് വികസിപ്പിക്കുന്നു



തടസ്സം മാറിയ ധമനി



സ്റ്റെന്റ് പിടിപ്പിച്ച ധമനി

അടിഞ്ഞു കയറിയ സുഷിപ്ത ധമനി

പ്രതിരോധം ചെയ്യുന്നത് വിദഗ്ദ്ധരായ ഡോക്ടർമാരാണ്. എങ്കിലും രോഗിയുടെ പ്രായം, രോഗത്തിന്റെ തീവ്രത, ആരോഗ്യസ്ഥിതി, പ്രമേഹം, രക്തസമ്മർദ്ദം വ്യക്തമായവയെല്ലാം എന്നിവ ഉണ്ടോ ഇല്ലയോ എന്നതിനെ അടിസ്ഥാനമാക്കി അപകടസാധ്യത 1% മുതൽ 5% വരെ ഏറിയും കുറഞ്ഞുമായി ചികിത്സയ്ക്കുവേണ്ടി ഉപയോഗിക്കുന്ന കോൺട്രാസ്റ്റ് വ്യക്തമായ പ്രവർത്തനത്തെ സാധാരണയായി കാണാറുള്ളതിനാൽ ചികിത്സയ്ക്കുമുമ്പ് വ്യക്തമായ പ്രവർത്തന ക്ഷമത വിലയിരുത്തണം.

പ്രാഥമികവും, ആൻജിയോപ്ലാസ്റ്റിയ്ക്കും മുമ്പ് ചെയ്യേണ്ട പ്രധാനകാര്യങ്ങൾ പരിശോധനയും, മൂത്രപരിശോധനയും :-

പ്രശ്നം :- പരിശോധനാ രീതിയെ കുറിച്ചും ചികിത്സാരീതിയെ കുറിച്ചുമുള്ള കാര്യങ്ങൾ ഡോക്ടർമാർക്കറിയാത്തതും ഇത് മനസ്സിലാക്കിയതിനുശേഷം സമ്മതപത്രം ഒപ്പിട്ടു കൊടുക്കണം.

പ്രശ്നം :- വിമുക്തമായ ചർമ്മം :- കത്തിറ്റർ ഉണ്ടാകുന്ന മുറിവിലോ അപൂർവ്വമായി രക്തത്തിലോ ബാധ ഉണ്ടാകാറുണ്ട്. അതിനാൽ ടെസ്റ്റിനുവേണ്ടി കത്തിറ്റർ കടത്തിവിടുന്ന ശ്രമം ഒഴിവാക്കണം. ചെറിയ മുറിവുകൾ വൃത്തിയാക്കുകയും അണുവിമുക്തമാക്കുകയും ചെയ്യണം.

പ്രശ്നം :- അർദ്ധരാത്രി 12 മണിമുതൽ രോഗി നിരാഹാരത്തിലായിരിക്കണം അതാലോചനയോടെ ഉള്ള ഭക്ഷണസാധനങ്ങൾ ഒഴിവാക്കണം. ഞരമ്പിലൂടെ ഗ്ലൂക്കോസ് നിലനിർത്തണം. ചികിത്സാ സമയത്ത് രോഗി ചെറിയ മയക്കത്തിലായിരിക്കുന്നതിനാലും, കോൺട്രാസ്റ്റായി ഉപയോഗിക്കുന്ന മരുന്ന് ചിലരിൽ ചർദ്ദി ഉണ്ടാകാറുള്ളതിനാൽ ഇങ്ങനെ ചെയ്യുന്നത്.

ചികിത്സയ്ക്കു ശേഷം

ചികിത്സിക്കുവാൻ ആൻജിയോഗ്രാം എന്ന പരിശോധനയ്ക്കുശേഷം രോഗിയെ വാർഡിലാണ് കിടപ്പാക്കുന്നത്. 6 മണിക്കൂർ വരെ ചികിത്സയ്ക്കു വിധേയമായ കാൽ മടക്കരുത്. രക്തം കട്ടപിടിപ്പിക്കാനും, രക്തസ്രാവം ഇല്ലാതിരിക്കാനും ഇതത്യാവശ്യമാണ്. അരമണിക്കൂറിനുശേഷം 3-ാം കഴിക്കാം സാധാരണ ഗതിയിൽ പിറ്റേ ദിവസം തന്നെ വീട്ടിൽ പോകാം. ആൻജിയോഗ്രാമിനുശേഷം രോഗിയെ തീവ്രപരിചരണ വിഭാഗത്തിലാണ് കിടത്തുന്നത്. രോഗിയുടെ ഹൃദയവും രക്തസമ്മർദ്ദവും കൃത്യമായ ഇടവേളകളിൽ രേഖപ്പെടുത്തും. 4 മണിക്കൂറിനു ശേഷം (രക്തസ്രാവം ഉണ്ടായാൽ എത്ര പെട്ടെന്ന് രക്തം സ്വമേധയാ കട്ടപിടിക്കും എന്നറിയാനുള്ള ചെയ്തതിനു ശേഷം അത് അനുപാതികമാണെങ്കിൽ രോഗിയുടെ തുടയിലെ രക്തത്തിൽ ചികിത്സാ സമയത്ത് കത്തീറ്റർ കടത്താനായി ഉപയോഗിച്ച പ്ലാസ്റ്റിക് ട്യൂബ് നുമാറ്റം ഏകദേശം 10 മണിക്കൂർ വരെ കാൽ മടക്കാതെ കിടക്കണം. ഈ സമയത്ത് കിടന്നു തന്നെ മൂത്രം ഒഴിക്കേണ്ടതായിവരും. മൂത്രമൊഴിക്കാൻ ബുദ്ധിമുട്ടുള്ളവരിൽ ഡ്രൈഫ്റ്റ് മൂത്രമെടുക്കാറുണ്ട്. മുറിവുണ്ടാക്കിയ ഭാഗത്ത് രക്തം കട്ടപിടിച്ച് കല്ലിപ്പ് ഉണ്ടാകാനായി ട്യൂബ് എടുത്ത് 2 മണിക്കൂറിനു ശേഷം ഒരു മരുന്ന് കൊടുക്കാറുണ്ട്. വീണ്ടും കുഴപ്പങ്ങളിൽ കൊഴുപ്പ് അടിഞ്ഞുകൂടാതിരിക്കാനായി മറ്റൊരു മരുന്നും 18 മണിക്കൂർ ന്നയ്ക്ക് കൊടുക്കാറുണ്ട്. ചികിത്സയ്ക്കു ശേഷം 3-ാം ദിവസം സാധാരണഗതിയിൽ പോകാവുന്നതാണ്.

5 സാധ്യതകൾ

അപകടസാധ്യതകൾ

മുറിവ് ഉണ്ടാക്കിയ സ്ഥലത്തുനിന്നുള്ള രക്തസ്രാവം
ലക്ഷ്യമില്ലാത്ത ലക്ഷ്യവും ഛർദ്ദിയും
മുറിവുണ്ടാക്കിയ ഭാഗത്തെ രക്തയോട്ടം തടസ്സപ്പെടുക

5-ാം തീയതിയായ അപകട സാധ്യതകൾ

എംബോളിസം - രക്തക്കുഴലുകളിലൂടെ കത്തീറ്റർ കടത്തിവിടുമ്പോൾ ഭിത്തികളിൽ കുടുങ്ങിയിരിക്കുന്ന അസാധാരണ വസ്തുക്കൾ അടർന്ന് രക്തത്തോടൊപ്പം പോകുകയും രക്തക്കുഴലുകളിൽ തടസ്സം സൃഷ്ടിക്കുകയും ചെയ്യുന്നു. ഇത് തലച്ചോറിനകത്താണ് ഉണ്ടായെന്നതെങ്കിൽ പക്ഷാഘാതത്തിനടിയാകും.

അണുബാധ

മരുന്നു കൂത്തി വയ്ക്കുന്നത് കൊണ്ടുള്ള അപകട സാധ്യതകൾ

ചിലരിൽ അലർജി, ചൊരിച്ചിൽ, ശ്വാസതടസ്സം, തടിപ്പ് എന്നിവയുണ്ടാകാം.

പ്രാഥമികപരമായ പ്രശ്നങ്ങൾ നിലവിലുണ്ട് എങ്കിലും ഇത് ലളിതവും, സുരക്ഷിതവും ആയ ചികിത്സയാണിത്.

സഹകരിച്ചതിനു നന്ദി
വേഗം സുഖം പ്രാപിക്കട്ടെ.

CONSENT

It is to inform that I am willing to participate in the study i.e, 'A study to assess the effect of individualized instruction about hospitalization for patients undergoing CAG/PTCA'; and to fill the questionnaire.

Place

Name of the Patient :

Date

Signature of the Patient :

**QUESTIONNAIRE TO ASSESS THE LEVEL OF KNOWLEDGE
ABOUT HOSPITALISATION AMONG PATIENTS UNDERGOING
CAG/PTCA**

Section A

- 1) Name of the patient**
- 2) Age**
- 3) Sex**
- 4) Education**
- 5) Hospital No**
- 6) CMWARD /CMICU**
- 7) Angiogram/Angioplasty**

Section –B

This structured questionnaire is used to assess level of knowledge about hospitalisation among patients undergoing CAG/PTCA.

The clients are subjected put tick mark against the most appropriate answers for the underlying questions . Each write answer carries one mark .

- 1) Have you got any previous information about CAG/PTCA ? If yes, from where ?**
 - a) No**
 - b) Yes**
 - 1) Media**
 - 2) Reading**
 - 3) Heard from others**
- 2) What do you mean by the Angiogram ?**
 - a) It is a procedure used to remove the blockage in the blood vessels permanently .**
 - b) It is a laproscopic procedure .**
 - c) It is a test which helps to find out the exact location of blockage in each blood vessels .**
 - d) It is an open heart procedure.**

- 3) What do you mean by Angioplasty ?
- a) It is a procedure which is using to find out the exact location of blockage in each blood vessels.
 - b) It helps to remove the blockage in the blood vessels completely .
 - c) It helps to remove the blockage in the blood vessels partially .
 - d) It helps to remove fat in the blood vessels completely .
- 4) What among the underlying matters is not needed prior to CAG /PTCA ?
- a) Blood and Urine tests
 - b) Informed written consent
 - c) Heart scan (CT,MRI)
 - d) Skin preparation and fasting from midnight
- 5) How much time the patient has to lie flat in the table for Angiogram in the Cath lab?
- a) 1-2 hrs.
 - b) 2-3hrs.
 - c) 3-4 hrs .
 - d) 4-5 hrs .
- 6) What is the reason for that the patient is subjected not to bend the leg for 6 hrs after Angioplasty ?
- a) To prevent bleeding
 - b) To prevent chest pain
 - c) To prevent urinary retention
 - d) To prevent dyspnoea .

7) What are the main complications after Angioplasty ?

- a) Bleeding .**
- b) Allergy**
- c) Infection**
- d) All of the above are correct**

Write Yes or No for the under lying Questions

- 8) The patient is fully conscious during the procedure.**
- 9) There is a possibility for restenosis after stent placement followed by Angioplasty .**
- 10) It is mandatory to check the functioning of the kidney before the procedure.**

EDUCATIONAL PAMPHLET

CORONARY ANGIOGRAM /ANGIOPLASTY

This pamphlet has been prepared to help all of you to understand about Angiogram or Angioplasty.

Heart is one of the main organs in our body. It has the main function to supply blood to all vital centers of our body in correct amount and in correct time. Coronary artery diseases are now commonly seen in most of the individuals, which will lead to heart attack and death finally.

CORONARY ANGIOGRAM

It is the gold standard test used to find out the exact location of coronary artery lesions. It is performed in a cardiac catheterization laboratory. Vascular access is achieved by coronary artery puncture, or less commonly brachial artery puncture, or cut down. A guide catheter is advanced in a retrograde fashion into the target coronary artery and angiographic views of the stenotic lesions are obtained. The bleeding from the site is usually controlled by manual compression and shifted the patient to the ward with pressure dressing.

ANGIOPLASTY

A balloon tipped catheter is inserted over a steerable coronary guide wire and positioned with balloon across the stenotic lesion one or more balloon inflations are performed to dilate the atheromatous segment. In some clients, intra coronary stenting devices are placed to prevent restenosis. Though this treatment conducted by skilled cardiologists, the possibility of complications vary between 1% to 5% depends on the age, general condition and the presence of diabetes, hypertension and kidney problems. The dye which is used for the procedure has a capacity to cause an adverse effect in the functioning of the kidney so it is mandatory to check the function before and after the procedure.

Pre-procedural preparation for Angiogram and Angioplasty

- 1) Blood and Urine tests
- 2) Informed written consent – After understanding the benefits and complications of the procedures thoroughly as explained by the doctor give informed written consent.
- 3) Anti microbial Skin preparation –There is a possibility for micro organism to enter either through the site of catheter insertion or through the blood. So need shaving and skin preparation with betadine solution.
- 4) Nil per orally –NPO is needed from since 12 midnight that means has to stop intake of food through the mouth. IV fluids can be given

to the patient instead of that .It is to prevent the nausea and vomiting that may occur during the procedure either due to the effect of dye or sedation

POST-PROCEDURAL CARE IN THE ICU

Usually the patients are placed in the ward after angiogram. The client should not bend the leg for 6 hrs after the procedure to prevent bleeding and embolism. After half an hour the client can eat food and doing interventional /surgical procedure depending upon the condition.

Usually the patients are kept in the CCU after Angioplasty with arterial sheath in situ. Vital signs should be monitored for 4 hours strictly and ACT (activated clotting time)and ECG to be taken. After 4 hours again check the ACT and if it is below 150 arterial sheaths are removed by the doctor. Since patient is not ambulant and unable to bend the leg for 6 hours, he will be subjected to pass urine in the urinal or bed pan in recumbent position. Anticoagulant and anti plateletic medicines are usually giving in the post sheath removal period.

Complications

Minor

- **bleeding**
- **dizziness and hypotension .**
- **lower limb ischemia**

Major

- **Embolism and stroke**
- **Sepsis**
- **Death**

Complications that may occur due to dye

- **Allergy**
- **Itching**
- **Dyspnoea**
- **Angioedema**

Though all these possibilities exists, both these relatively simple, safe and are gold standard methods in the area of diagnosis and treatment.