

A HEART ATTACK IN ELDERLY PEOPLE

The guidebook for relatives and healthcare
professionals

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ABSTRACT

Heart attack is one of cardiovascular diseases leading most causes of death in European Union. According to Eurostat (2016), every eight deaths there is one caused by heart attack in European Union in 2013. Heart attack happens when heart muscle is not supplied sufficient oxygen and nutrients leading to damage or death part of heart muscle. The more time insufficient blood flowing to heart muscle is the more widespread damaged muscle cells as well as more dangerous life- threatening. The purpose of thesis is raising everyone's awareness particularly elderly relatives and health care professions about heart attack. The aim of thesis is to create a reliable guidebook for elderly's relatives and health care professionals.

Creating a guidebook for elderly's relatives and health care professionals is an inevitable part in this thesis. This guidebook was made to share critical knowledge about heart attack and handling with emergency situation and supporting patient in recovery stage. The guidebook is mini version of the thesis. All information written in guidebook is based on thesis. It is important for everyone to learn about heart attack and first aid. As a result, they can live healthier, more active and take care of themselves. In order to reach everyone, this guidebook uses the most simple words and phrases as well as intuitive and clear statements.

This thesis is practice- based thesis. Qualitative research method particularly descriptive research is the main method of this thesis to gather, analyze and process knowledge about heart attack. The main research questions of this thesis are: what to do if an elderly is having a heart attack and how to support elderly successful recovery from heart attack? For further development, nursing research about successful recovery from heart attack needs to be updated and be listed details in next version of guidebook.

Key words: elderly, heart attack, acute myocardial infarction, relatives, caregivers, health care professions, emergency treatment, rehabilitation, recovery.

Lahden ammattikorkeakoulu
Koulutusohjelma Sairaanhoidaja AMK

PHAN, NGAN Sydänkohtaus vanhuksille
Opas sukulaisille ja terveydenhuollo
ammattilaisille

Hoitoyönkoulutusohjelman opinnäytetyö, 41 sivua, 18 liitesivua

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TIIVISTELMÄ

Sydänkohtaus on yksi kardiovaskulaarisista sairauksista, joka on yksi suurimmista kuolemansyistä Euroopan unionissa. Eurostatin (2016) mukaan yksi kahdeksasta kuolemasta johtui sydänkohtauksesta Euroopan unionissa vuonna 2013. Sydänkohtaus tapahtuu, kun sydänlihaksen ei saa tarpeeksi happea eikä ravintoaineita, joka johtaa sydänlihaksen vaurioon tai kuolemaan. Mitä kauemmin sydämen riittämätön verenkierto kestää, sitä enemmän lihassolu vaurioituu ja tila muuttuu hengenvaaralliseksi. Opinnäytetyön tarkoituksena on lisätä erityisesti vanhuksien läheisten ja terveydenhuollon ammattilaisten tietoisuutta sydänkohtauksesta. Opinnäytetyön tavoitteena on luoda luotettava opas vanhempien ihmisten sukulaisille ja terveydenhuollon ammattilaisille.

Vanhusten sukulaisten ja terveydenhuollon ammattilaisten oppaan laatiminen on väistämätön osa tässä opinnäytetyössä. Tämä oppaan tarkoituksena on jakaa kriittistä tietoa sydänkohtauksesta ja hoidosta hätätilanteessa ja tukea potilasta palautumisvaiheessa. Opas on pienimuotoinen opinnäytetyö. Kaikki ohjeisiin kirjoitetut tiedot perustuvat opinnäytetyöhön. On tärkeää, että kaikki saavat tietoa sydänkohtauksesta ja ensiavusta. Tämän ansiosta he voivat huolehtia itsestään, ja elää terveempää ja aktiivisempaa elämää. Jotta pääsisimme kaikkiin faktoihin, tässä oppaassa käytetään yksinkertaisimpia sanoja ja lauseita sekä intuitiivisia ja selkeitä lausuntoja.

Tämä opinnäytetyö on käytännönläheinen opinnäytetyö. Kvalitatiivinen tutkimusmenetelmä, erityisesti kuvaileva tutkimus, on tämän opinnäytetyön tärkein menetelmä kerätä, analysoida ja käsitellä tietoa sydänkohtauksesta. Tämän opinnäytetyön tärkeimmät tutkimuskysymykset ovat: mitä tehdä, jos vanhuksilla on sydänkohtaus ja kuinka tukea iäkkäiden palautumista sydänkohtauksen jälkeen?

Jatkokehittämiseen tarvitaan sekä opaskirjan sisältöä että muotoilua. Hoitotutkimus sydänkohtauksen onnistuneesta palautumisesta on syytä syventää ja luetella tarkemmin oppaan seuraavassa versiossa. Opaskirjan suunnittelu on luova ja houkutteleva.

Asiasanat: iäkkäät, sydänkohtaus, akuutti sydäninfarkti, omaiset, hoitajat, hoitohenkilöstö, hätäkäsittely, kuntoutus, elpyminen.

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INTRODUCTION

A heart attack is commonly called as myocardial infarction, cardiac infarction and coronary thrombosis (Choi 2017). Heart attack happens when heart muscle is not supplied sufficient oxygen and nutrients leading to damage or death part of heart muscle (American Heart Association 2016a). The more time insufficient blood flowing to heart muscle is the more widespread damaged muscle cells as well as more dangerous life-threatening (Gale Encyclopedia of Medicine 2017). Obviously, it is a serious medical emergency and needs to treat immediately. In case of late treatment, it can cause severe complications or even deaths. (Beckerman 2016.)

According to Eurostat (2016), every eight deaths there is one caused by heart attack in European Union in 2013. Finland ranks ninth in the rate of death caused by heart attack. In addition, the risk of death from heart attack increases significantly along with increase of age. (Eurostat 2016.)

As heart attack facts and statistics have shown in Eurostat 2016, the theories about heart attack is very important and necessary. The purpose of this thesis is to present detailed knowledge about heart attack, heart attack first aid and nursing management for heart attack patient and supporting patient in recovery stage. The aim of thesis is to create reliable guidebook for elderly's relatives and health care professionals.

For relatives, the guidebook helps them to understand heart attack, guide them act without delay in safe way and know supporting elderly recovery after heart attack. Otherwise, it is also a good reference for health care professions to enhance their knowledge and use as guiding purpose. I will perform gathering, analysing and processing knowledge from scientific researches, books and other available materials. All of information written in guidebook is based on the thesis.

This guidebook provides more contents compared to other guidelines. Not only including basic information that the readers should know about heart

attack, heart attack first aid but also the critical knowledge about emergency care, nursing management for heart attack patient and successful rehabilitation. The guidebook can reach everyone because of simple written language and clear statements.

1 THEORETICAL BACKGROUND

1.1 Cardiac anatomy

First of all, “the heart is a hollow muscular organ encased and cushioned in its own serous membrane and pericardium” (Woods et al. 2004, 3). The average weight of heart is 300 grams. The foundation of heart is above and between sternums. (Dam 2015, 1.) Otherwise, the position of apex is at the 5th left intercostal space at the midclavicular line or just lies below and middle of left nipple (Vishram 2007, 131). Furthermore, there are three cardiac surfaces including sternocostal, diaphragmatic, and left surface (Volker 2017).

Turning to internal shape of human heart, the heart is divided into two specific halves by inter- atrial and inter- ventricular septa. These halves are left and right heart. (Dam 2015, 1.) In addition, left heart includes left atrium and ventricle, which contents oxygenated blood receiving from lungs and pumping the blood to arterial system under high pressure meanwhile the blood containing carbon dioxide from body flows into right heart then is pumped into pulmonary arterial system with low pressure (Woods et al. 2004, 3).

1.2 Causes of heart attack

The function of heart is like a pump which remains pumping blood around body (Dam 2015, 1). The heart muscle undertakes this task so that it needs coronary arteries to supply constantly blood (Cutting & Maddocks 2004, 9).

Unreasonable eating habits and lifestyle leads to accumulate fatty and cholesterol in smooth artery lining. As a result, it causes narrowing artery by the year. The fatty deposits are gradually harden creating tough plaques inside arteries. It is called as atherosclerosis. Similarly, fatty

plagues building up inside coronary arteries of heart for long time ago is known as coronary atherosclerosis. (Cutting & Maddocks 2004, 10.)

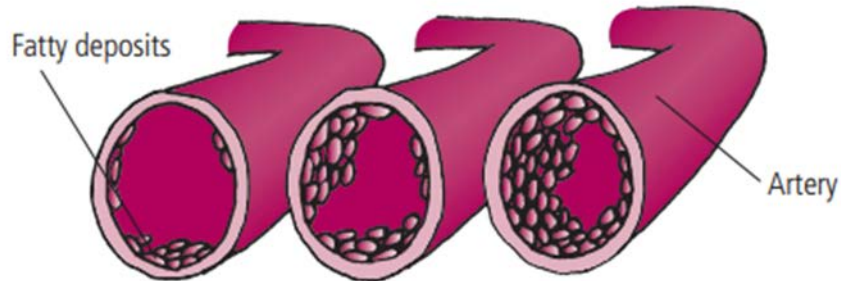


FIGURE 1. "Gradual increase of fatty deposits along the inside of artery walls leads to narrowing of arteries" (WHO 2005, 9)

Narrowing coronary artery due to forming fatty plaques can create disruption blood flow and reduce blood supply (Figure 1) (Cutting & Maddocks 2004, 10). Furthermore, when atherosclerosis's surface is damaged, a blood clot is formed around plaque. A small blood clot merges leading to increase size of plaque. In case of bigger blood clot, the artery can be blocked completely or sometime obstructed totally. As a serious consequence, a section of working heart muscle is not supplied oxygenated blood by that coronary artery causing death of heart muscle cells. Heart attack occurs right moment when coronary artery is blocked abruptly. (Figure 2) (Cutting & Maddocks 2004, 11.)

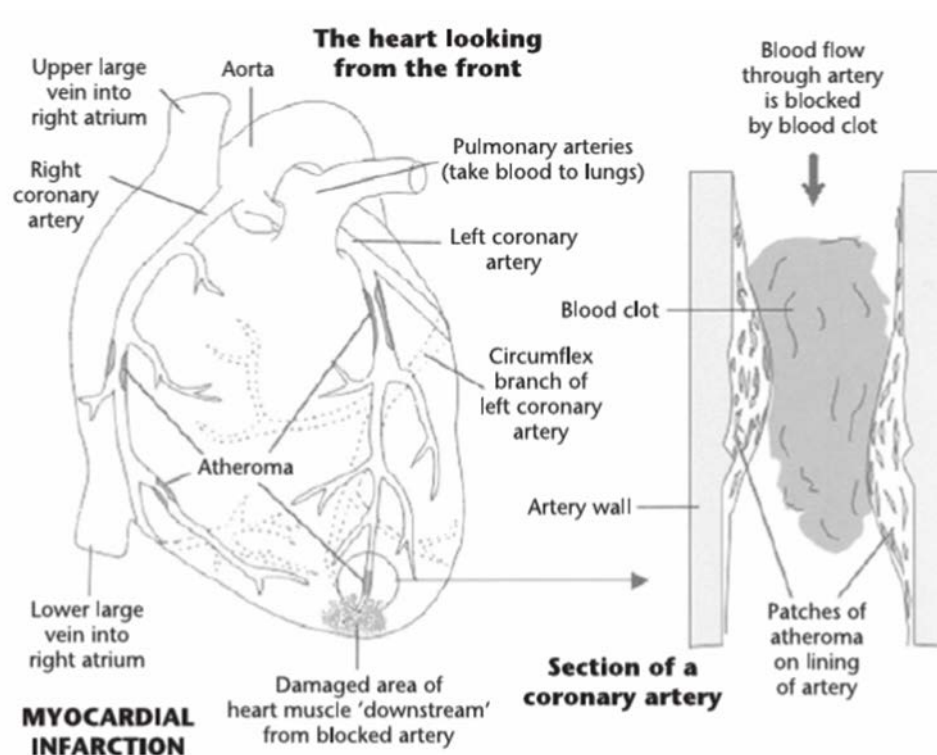


FIGURE 2. "What happen when you have a myocardial infarction?"
(Tippins & Evans 2006, 35)

Heart attack is also called as myocardial infarction (MI). Myocardium is a different name of heart muscle and death of tissue because of sudden cutting off blood is named as infarction. Hence, "heart attack is the death of a bit of heart muscle— big or small". (Cutting & Maddocks 2004, 11.)

1.3 Symptoms and complications of heart attack

Total 10 228 people aged 14- 98 coming from different nine countries including Austria, France, Italy, Germany, Netherland, Poland, Russia, Spain, and UK, participated a representative survey about symptom recognition of heart attack and stroke. The result of thesis has shown that there are only more than 50 percent of participants recognizing chest pain as a symptom of heart attack when they were asked to indicate possible heart attack's symptoms in 7 given conditions. In addition, 8 percent of interviewers did not identify a single symptom. Otherwise, the two older

group knew better about heart attack symptoms than youngest group. Therefore, increasing awareness about heart attack symptoms plays an important role in reducing delay treatment, high mortality and morbidity. (Maita, Frank & Gigerenzer 2014, 376- 387.)

Inadequate rich oxygen blood supplying to working heart muscle, which causes pain for the heart muscle. That pain is known as angina or angina pectoris. (Cutting & Maddocks 2004, 12.) Pain of a heart attack being often pressure, squeezing or fullness in the center of chest, lasts more than a few minutes and repeats relevant pains. Not only chest pain but also the pain in other areas such as arms, left shoulder, elbows, jaw or back can be felt. Moreover, there are still some other symptoms of heart attack. They include shortness of breath or breathing difficulty, feeling sick or vomiting, and feeling light-headed or faint, cold sweating or becoming pale. (WHO 2005, 15.) It is very important to understand the heart attack symptoms are not always same in everyone (NIH 2011, 1-2). Particularly, shortness of breath, nausea, vomiting, back or jaw pain is usually found in women. Otherwise, chest pain maybe not be felt as much in long term diabetes people. (WHO 2005, 15.)

Heart attack can cause several serious complications quickly leading to death. There are three main complications including cardiogenic shock, cardiac arrhythmia and heart failure. Cardiogenic shock is severe complications from severe heart attack which can be fatal up to 80% cases. Cardiac arrhythmia can cause sudden cardiac arrest. Heart failure does not recuperate due to damaged heart valve and broken heart valve ligament. (Ngo 2015, 64.)

1.4 Risk factors and tips for reducing risk of heart attack

Poor lifestyle habits including smoking or other tobacco use, unhealthy diet and lack of physical activity are the most common risk factors for having heart attack (WHO 2005, 11). Tobacco smoking causes several health effects particularly lung cancer, chronic bronchitis and emphysema.

Otherwise, tobacco users have higher risk of heart diseases leading to increase having heart attack. (NIDA 2017.) Moreover, secondhand smoke exposure is at the same risk as direct smoker (WHO 2005, 11). Due to nicotine in tobacco products, nicotine is absorbed into blood and stimulate quickly adrenal glands to produce hormone epinephrine causing increase blood pressure, breathing and heart rate (NIDA 2017).

Another important risk factor for heart attack is unhealthy diet. Unhealthy diet is unbalanced diet such as eating too much food, fat, sugar, salt or less fruit and vegetables. As a result, unhealthy diet along with lack of physical activities leads to overweight or obesity. Furthermore, overweight causes diabetes, high blood pressure as well as high level of blood fat. (WHO 2005, 12.)

An inactive lifestyle or lack of physical activities is concerned as increasing heart attack. Because lack of physical activities can lead to high blood cholesterol level and obesity. (Mayo Clinic Staff 2017a.) In contrast, doing physical activities usually can bring several benefits for the health. Typical examples of this would be remaining good weight, reducing high level of blood pressure and increasing oxygen levels. (WHO 2005, 12; Mayo Clinic Staff 2017a.)

Otherwise, some certain health problems can increase the risk of heart attack. They are high blood pressure, high blood cholesterol or triglyceride levels and high blood sugar or diabetes. (Mayo Clinic Staff 2017a.)

High blood pressure or hypertension is consistently high force of blood pushing against walls of blood vessels. As a result, delicate tissues will be damaged by high force and friction forming cholesterol plaques causing smaller inside arteries. The blood supplying to heart can be blocked suddenly causing a heart attack. (American Heart Association 2016b.)

Higher blood cholesterol or triglyceride levels is greater risk of having a heart attack. Narrowing coronary artery caused by building up substances

of blood fats inside artery leads to restrict blood flow. Heart attack is resulted from blockage of blood supplying to heart. (NIH 2005.)

High level of blood sugar or diabetes is also an important risk factor of heart attack. Insulin is a hormone secreted from pancreas, which uses for moving glucose into cells and creating energy for body. However, glucose existing in blood stream due to lack of insulin and insulin resistance rises level of blood sugar. As a result, atheroma and atherosclerosis is built up and developed increasing heart attack risk. (British Heart Foundation 2017.)

Furthermore, there are still other important risk factors of heart attack. They include metabolic syndrome, chronic stress and certain medicines. (WHO 2005, 13-14.) Metabolic syndrome is name of a group risk factors increasing risk of heart disease and other health problems. Metabolic risk factors include 5 conditions which are large waistline, high triglyceride level, low HDL cholesterol level, hypertension and high blood sugar. Metabolic syndrome is diagnosed if people have at least three metabolic risk at the same. The more metabolic risk factors happening together is higher risk having a heart attack. (NIH 2016a.) According to World Health organization 2005 (14), "some oral contraceptives and hormone treatments can increase the risk of heart attack".

Turning to some useful tips of reducing heart attack risk, living healthy life is a good way to prevent any health problems particularly having a heart attack. The first things in the list needed to do is stop use tobacco products and doing physical activities regularly about 30 minutes per day. In addition, healthy eating such as 5 serving of fruits, vegetables every day and reducing amount of salt, sugar and fat in diet is recommended to make healthy life. Furthermore, checking health conditions including weight, blood pressure, blood fat and blood sugar each year is a good tip to avoid heart attack risk. Last but not least, it is necessary to motivate all of family members, relatives, friends and others live in healthy life. (WHO 2005, 14.)

1.5 Treatment of heart attack

Treatment of heart attack needs to start quickly in order to reduce maximally the damage of heart muscle. Immediate treatments include taking aspirin, nitroglycerin, and oxygen therapy and angina treatment. Aspirin is effective drug to prevent more blood clot while nitroglycerin helps heart to reduce heart's workload. (NIH 2015a.) In addition, in hospital settings, intravenous injection IV Morphine Sulfate 2- 5 mg one time is for relief of chest pain (Ngo 2015, 64). Furthermore, supplemental oxygen is provided due to shortness of breath leading to low blood oxygen. This treatment will increase oxygen to lung and deliver to blood. (NIH 2016b.)

When a patient arrives to hospital, there are several tests given by doctors to diagnose heart attack. They are electrocardiogram (ECG), blood tests and coronary angiography. (NIH 2015b.) Clot- busting medicines and coronary angioplasty are the major treatments for heart attack (NIH 2015a). Using thrombolytic or blot busters is aimed at dissolving a blood clot inside coronary artery. Taking thrombolytic drugs right after a heart attack will bring the greater survival chance as well as less damage to heart. (Mayo Clinic Staff 2017b.) The other heart attack treatment is percutaneous coronary intervention. Doctor or cardiologist will perform coronary angioplasty in order to open the narrow or blocked coronary artery caused by fatty plaques. Inserting a catheter tube and injecting contrast dye into coronary by guiding from live X-ray will be conducted in wrist or groin. (NIH 2016c.) A small mesh tube named stent can be placed in coronary artery in order to remain artery opening long term (Mayo Clinic Staff 2017b).

Otherwise, the doctor can also prescribe different medicines for heart attack patients. They include antiplatelet agents, other blood thinning medications, pain relievers, beta blockers and ACE inhibitors. (Mayo Clinic Staff 2017b.) Moreover, the other procedure called coronary artery bypass grafting (Figure 3) will be also performed if it has more effective outcome than other types of treatment. During coronary artery bypass grafting

procedure, surgeon will take a healthy artery or vein from leg, arm or chest of patient and then sew it around the blockage. Thank to graft vessel, the working heart muscle is supplied enough oxygenated blood bypass blocked coronary artery. (SingHealth Group 2014.)

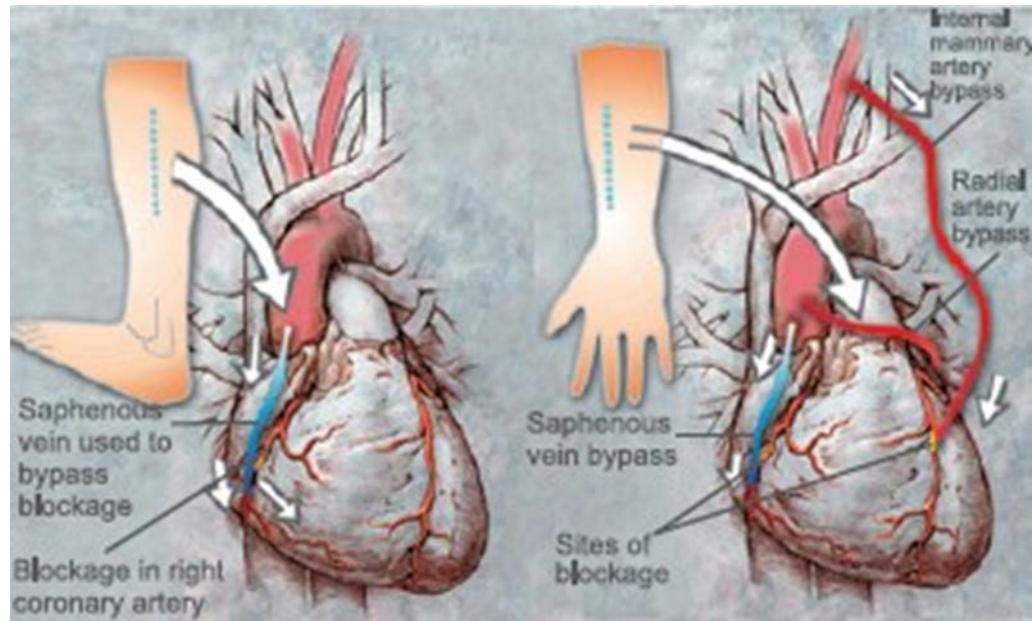


FIGURE 3. Coronary artery bypass grafting (SingHealth Group 2014)

2 THE PURPOSE, AIM OF THESIS AND RESEARCH QUESTIONS

The purpose of thesis is to present critical knowledge about heart attack, heart attack first aid and nursing management for heart attack patient and supporting patient in recovery stage. The aim of thesis is to create reliable guidebook for elderly's relatives and health care professionals. The guidebook was made to share important knowledge about heart attack, handling with emergency situation and supporting patient in recovery stage.

RESEACH QUESTIONS

1. What to do if an elderly is having a heart attack?
2. How to support elderly fully recovery after heart attack?

3 DATA COLLECTION METHOD

3.1 Practice- based thesis

In this thesis, I made a guidebook about heart attack in elderly for relatives and health care professionals. "Practice- based thesis is the development of working life". A typical example of this would be creating of practical actions or instructions. In practice- based thesis, the author will create such as event, object or product. (Vuori 2017.)

3.2 Data collection method

This thesis is practice- based thesis and data collection method is qualitative research method. I collect data from different sources including scientific researches, books, professional journals, articles, research reports and other available materials in the internet.

The effective search engines are Masto- finna and Google to gather useful information and sources. I had accessed to ProQuest Ebook Central online and EBSCOhost at Masto- finna to collect useful information for my thesis. ProQuest Ebook Central online and EBSCOhost are the major source which I could figure out reliable, scientific and professional e- books and pdf files.

Otherwise, I also gathered information from reliable websites such as American Heart Association, WebMD medical online and Mayoclinic. The most useful website, at which I found out many good articles for health topic is National Heart, Lung and Blood Institute (USA). The articles, written in English by professional health care staffs, are official information as well as up to date.

However, I also read the articles and printed books written in mother language- Vietnamese to deeply understand about cardiac anatomy and nursing management for heart attack patient. The other type of online

document I have accessed is a video about first aid training related to heart attack and how to perform CPR from YouTube channel.

I narrowed search of publication year from 2007 to 2017. However, I still collected data from books published by 2006, 2004 and 1981. Although their publication years are old, their contents are still value containing the core theories about heart attack, foundations of emergency care and aged- related physiological changes. In addition, I used official booklet produced by WHO 2005 about avoiding heart attacks and strokes. In spite of fact that its publication year is more ten years to now, it is still widespread in the world. The information written in the booklet is reliable, trustworthy and official.

4 RESULTS

4.1 Emergency care

Certainly, “emergency care is politically and socially one of the highest priorities in society today” (Tippins & Evans 2006, 1). Emergency care needs to ensure provisions related to demands and needs of patients in any different settings (Department of Health’s White Paper on Reforming Emergency Care 2001, as cited in Tippins & Evans 2006, 1). Moreover, the core points of emergency care for patients is quick, appreciate and effective treatment along with correct skills, right time and place (Tippins & Evans 2006, 1).

Turning to emergency department, it “is commonly the interface between patients and emergency care”. In emergency department, the first interaction between patient and health care profession is initial assessment and triage process. (Tippins & Evans 2006, 1.) A typical example of this would be acute chest pain, acting fast for prioritized assessment is aimed at life- saving and effective future life quality. Furthermore, clinical manifestations of heart disease comprise shortness of breathing, ankle edema, physical collapse and cardiac arrest. (Evans 2006, 30.)

Linked to acute myocardial infarction, acute myocardial infarction has three stage of development including ischemic, injury and infarction. Ischemic is result of oxygen inadequate causing tissue damage which is needed to early perform oxygen therapy. Delayed treatment leads to death tissue called infarction. Importantly, fast, safe and effective acting will have good impact on patient’s long- term. Moreover, the main initial assessments are content of clinical signs, symptoms, and risk factors and electrocardiogram (ECG). ECG assessment is a useful tool for identifying pathology along with relevant treatment. Basically, waver forms, creating from P, Q, R, S, T and U waves are shown ECG, indicate depolarization

and repolarization. In addition, the duration of cardiac cycle is calculated by the width of a wave through ECG. (Evans 2006, 36- 47.)

According to ESC (2005), the early diagnose of acute myocardial infarction along with fast, correct and effective action are the key factors which can help to limit damage for heart, reduce severe complications and develop heart failure. The action or treatment includes anti- coagulants, anti-platelet agents, thrombolytics, morphine, anti- emetics, glyceryl trinitrate, beta- blockers and statin. Otherwise, percutaneous coronary intervention can be performed if needed. (Evans 2006, 36- 47.)

4.2 Heart attack first aid

Acting fast is crucial point in this situation because “a heart attack is a life threatening emergency condition” (Southwest Cardiovascular Consultants 2017). Calling to ambulance immediately and performing immediate emergency medical care plays an important role in sustaining life and preventing medical complications. (Southwest Cardiovascular Consultants 2017.)

According to St John Ambulance (2016), the following steps will help everyone acting without delay when someone is dealing with a heart attack:

1. “Call 112 immediately and say you suspect a heart attack.
2. Help them into a comfortable position, support head and shoulders with knees bent.
3. Give aspirin 300mg dose to chew slowly if they are not allergic.
4. Help them to take angina medication if they have.
5. Encourage them to rest.
6. Monitoring their breathing, pulse and level of response while waiting for help.
7. In case of unresponsive status, open airway, check breathing, Cardiopulmonary maybe need to do.”

(St John Ambulance 2016 & Suomen Punainen Risti 2016)

Furthermore, cardiopulmonary resuscitation (CPR) is lifesaving technique which is performed once when patient's breathing or heartbeat is stopped. In case of untrained person, you should call immediately to local emergency number especially 112 Finnish emergency number before performing CPR and follow proper procedures until paramedics arrive. What you need to do CPR is only chest compressions particularly do it consecutively 100 to 120 compressions a minute. You do not need try to rescue breathing. However, for professionals or trained people, you begin CPR cycle with 30 compressions and then give 2 rescue breaths in case no pulse and no respiration. (Mayo Clinic Staff 2017d.) Instruction guiding how to do CPR is detailed below.

1. "Place him or her lie back down on firm surface.
2. Remove clothing out of chest if possible.
3. Locate your hand placement for compressions. With your hand draw a line from armpit to center of chest for placement. Place heel of one hand on the lower half of sternum breast bone and then place other hand over the first interlacing your fingers for support with your arms straight, your shoulder positioned over the victim chest.
4. Push down on victim' chest at least 2 inches or 5 cm and 30 deep compressions in 18 seconds or less or at least 100 compressions in a minute. You may lift your hand slightly off the chest between compressions to allow for full chest recoil but keep your hand placement and keep interruptions to minimum.
5. Count loud to 30. After 30 compressions you give two breaths. Between breaths, you look for chest to raise."

(Williams 2014 & Suomen Punainen Risti 2016)

Before performing rescue breathing, you open the victim's airway by tilting head back and lifting chin forward. While you give rescue breathing, patient's nostrils are pinched for shut. You will blow twice and the first

breathing lasts one second. You observe chest whether it raises or not. If it raises, you continue blow to victim's mouth. If not, you tilt victim's head back and lift chin forward and then give the second breathing. You can give rescue breathing by blowing directly from your mouth to victim's mouth or your mouth to victim's nose in case of seriously injured or no way to open his/ her mouth. (Suomen Punainen Risti 2016.)

4.3 Nursing management for heart attack patient

4.3.1 Nursing assessment

Nursing assessment plays an important role in caring heart attack patient. Therefore, a nurse needs to assess carefully and particularly as well as follow guidelines.

Firstly, a nurse will ask patients or patients' relatives about detailed clinical symptoms such as chest pain, difficult breathing and sweat. Each symptoms needs to be asked detailed about onset, intensity and lasting time.

Secondly, history of illnesses is taken into account. A nurse will figure out detailed information about increasing blood pressure, previous heart attack and other risk factors.

Thirdly, a nurse will read medical records and monitor vital signs in order to identify clinical manifestations. The typical examples are listed below.

- Heart rate (Pulse): regular or irregular heartbeat? Abnormal heart rhythm?
- Blood pressure: signs of decreasing systolic blood pressure need to be noticed.
- Breath: assessing types of breathing such as dyspnea, tachypnea and crackles.
- Signs of stagnant heart failure: edema, big liver, floating neck vein.

Last but not least, a nurse needs to keep track of electrocardiogram (EKG or ECG) to recognize complications especially arrhythmia.

(Ngo 2015, 65-66)

4.3.2 Nursing diagnoses

The nursing diagnoses are based on nursing assessment as mentioned above. They can include chest pain due to damaged heart muscle and decreasing gas exchange due to blood clots in lung. In addition, patient cannot manage physical activities because of oxygen supply and demand imbalance. Patient can also have signs of anxiety related to changes in his health condition. (Ngo 2015, 66.) Furthermore, the other nursing diagnosis can be a decreasing blood flow from heart to organs due to inefficient cardiac tissue perfusion caused by damaged or death of cardiac muscle. Finally, lack of knowledge about heart attack is the risk of non-compliance of care plan. (Belleza 2018.)

4.3.3 Nursing care plan

The nurse needs to analyze, gather and conclude data so as to identify essential patient's needs and then make a typical plan. When doing plan, the nurse needs to consider patient's condition and priority matter. (Vietnam National Heart Association 2016.) The objectives of nursing care plan for myocardial infarction patient is listed below:

- Chest pain is relieved promptly.
- Improving blood flow from heart to organs.
- No difficulties in breathing, normal breath.
- A gradual increasing in physical activities without chest pain.
- Reducing anxiety.
- Patient strictly complies with care plan.

(Vietnam National Heart Association 2016)

4.3.4 Nursing interventions

Goals	Nursing interventions
1. Absence of chest pain	<ul style="list-style-type: none"> - Limiting patient's motion to reduce oxygen consumption of heart muscle - In case of hard breathing, semi- fowler position is better for patient - Implement medical command: Administrating Morphine sulfate i.v dosage from 2 mg to 5 mg per one injecting time. Inserting intravenous (i.v) cannula is necessary and helpful when injecting several times <p><u>Notices:</u></p> <ul style="list-style-type: none"> • Avoid intramuscular injection because it hurts patient and affects yeast test result • Observation and assessment breathing rate because of Morphine's side effect- Respiratory depression <ul style="list-style-type: none"> - Implement medical commands to ACE inhibitors or Thrombolytic, something needs to be taken into account: <ul style="list-style-type: none"> • Guiding carefully patient about drugs' usage to get effective outcomes • Tracking blood pressure because these drugs can cause decrease patient's blood pressure - Implement medical command: administering oxygen supply rich oxygen arterial blood reducing chest pain - Observing, assessing chest pain and especially tracking EKG consecutively. Report to doctor

	<p>immediately if chest pain is not relieved or suspecting abnormalities on EKG</p> <p>(Ngo 2015, 67)</p>
<p>2. Improving blood flow from heart to organs</p>	<ul style="list-style-type: none"> - Relax: is aimed at reducing heart rate so as to decrease cardiac output (Ngo 2015, 67). - Administering Nitroglycerin dilating blood vessels (NRSNG 2017). - Monitoring and assessing changes in heart rate, rhythm, heart sound, blood pressure, chest pain and urinary output (Belleza 2018).
<p>3. Improving gas exchange in lung</p>	<ul style="list-style-type: none"> - Let patient lie follow semi fowler position - Administering oxygen therapy following medical command - When absence of chest pain, guiding patient practice deep breathing and frequently change positions to improve gas exchange in lung - Observing and assessing signs of respiratory improvement: absence of dyspnea, tachypnea and crackles, normal breathing rate <p>(Ngo 2015, 68)</p>
<p>4. Increasing gradually physical activities</p>	<ul style="list-style-type: none"> - In case of chest pain, patient is not encouraged moving much in order to reduce oxygen consumption of heart muscle - When patient do not feel chest pain, allow patient do gradually physical activities. They are: <ul style="list-style-type: none"> • Moving limbs when lying in bed • Sitting on bed 2- 3 times, duration 10- 20 minutes • After that, allowing patient do gradually self-care everyday

	<ul style="list-style-type: none"> - While patient do physical activities, nurse needs to monitor patient status including heart rate, breathing, and chest pain and sweating. <p>(Ngo 2015, 68)</p>
<p>5. Reducing patient's anxiety</p>	<ul style="list-style-type: none"> - Encourage patient expressing of anxiety feelings. Based on those feelings, a nurse should explain and stay with patient helping them calm down - Observing patient's actions and words to recognize signs of anxiety such as agitation, aggression and hostility. Staying with patient and intervene if needed - Administering anti- anxiety and hypnotics as prescribed such as diazepam, lorazepam, flurazepam and alprazolam <p>(Vera 2018)</p>
<p>6. Educating health and guiding patient self- care</p>	<ul style="list-style-type: none"> - Guiding patient how to do exercise to recovery after heart attack: <ul style="list-style-type: none"> • Practicing earliest if possible and keep doing to improve coronary circulation • Increasing level and duration of practice especially walking and riding bike • Avoid doing exercises right after meal • Self- monitoring heart rate while practicing. Stop practice when rising heart rate significantly compared to normal heart rate - Guiding patient about healthy lifestyle: <ul style="list-style-type: none"> • Avoid activities causing chest pain such as exertion, sudden cold, sudden emotion and over eating

	<ul style="list-style-type: none"> • Advice patient getting enough sleep, eating slowly with small meals, taking enough rest after meals and avoid using stimulants - Limiting maximum or stopping all risk factors: <ul style="list-style-type: none"> • Overweight • Controlling well blood pressure • Managing blood sugar, triglyceride level • Stop smoking - Guiding patient dealing with chest pain <ul style="list-style-type: none"> • Always keep in pocket Nitroglycerin and take immediately one sublingual tablet right after appearing chest pain • See doctor right away if chest pain continues after taking Nitroglycerin, difficulties in breathing, too fast or too low heart rate... <p>(Ngo 2015, 69)</p>
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4.3.5 Evaluation and guidelines for discharge and home care

Patient needs to reach below goals:

- Absence of chest pain and chest pain does not appear again.
- Improved blood flow.
- Absence of dyspnea, tachypnea and crackles.
- Increasing gradually exercise without tiredness and chest pain
- Reducing fear or anxiety.
- Knowing self- care after discharge.

(Ngo 2015, 69.)

It is important for nurse to educate and guide patient about healthy cardiac lifestyle and self- care. Furthermore, home care nurse will help patient plan and update follow- up appointments with health care professionals. In addition, home care nurse directly assists patient complying with prescribed cardiac rehabilitation management, healthy eating habits as well as prescribed medication. Last but not least, home care nurse also has responsibilities for reminding patient about follow- up monitoring such as electrocardiogram (EKG), laboratory tests and general health check-up. (Belleza 2018.)

4.4 Successful recovery from heart attack

4.4.1 Understanding physical changes and health problems in elderly people

According to American Psychological Association (2017), there are plenty of physical changes and health problems in older adults. In addition, the physical changes and health issues are different and various from one another. The physical changes comprise hearing and visual impairment. Particularly, there are about 25 percent of 65- 74 years old people and 50 percent of elderly people aged 75 and over dealing with deterioration in hearing. Otherwise, the main problems with declining visual are related to difficulties in reading and driving at night. (American Psychological Association 2017.)

Turning to health issues, the most common chronic conditions causing about two thirds of all deaths for older people aged 65 and over are heart diseases, cancer, stroke and diabetes (American Psychological Association 2017). Chronic health conditions often cause impairments involved in changes in body structure or function. These impairments comprise declining in cognition, sensory and mood disorders. Moreover, elderly people having one of chronic conditions such as heart disease are usually difficulty in doing housework or difficulties in self- care are challenges with older people with stroke. (Colón- Emeric et al. 2013.)

Physiological changes is concerned significantly in people with coronary artery disease particularly myocardial infarction. When aging, the artery's wall becomes thicker due to increase in reproduction of intima, collagenization and accumulate of calcium and phosphate. Another reason causing the thickening and hardening wall of coronary artery is involved in arteriosclerosis. (Boss & Seegmiller 1981, 435- 436.) Arteriosclerosis (Figure 4) is the building up of plaque in wall of artery causing narrowing and hardening artery. Plaque is formed mainly by fat, cholesterol and calcium. (National Heart, Lung and Blood Institute 2016a.)

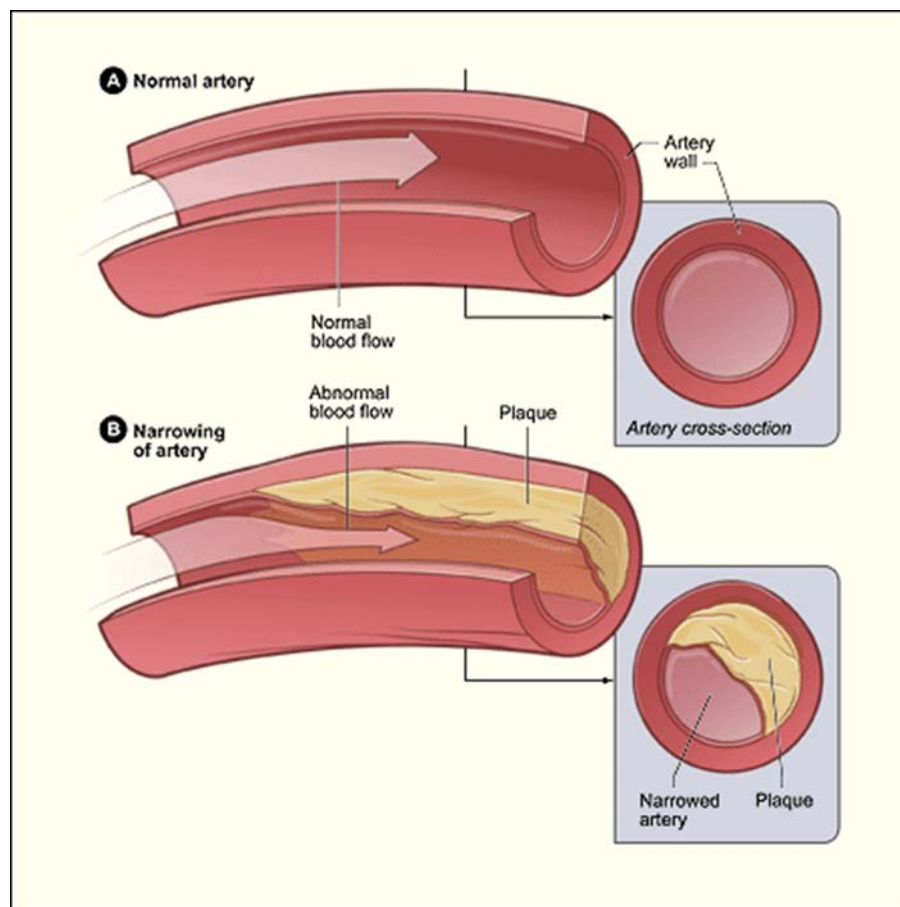


FIGURE 4. Normal artery and narrowing artery caused by arteriosclerosis (National Heart, Lung and Blood Institute 2016)

According to Boss & Seegmiller (1981, 436), the increase of myocardial infarction is significant with age. Therefore, the current objective of

preventing myocardial infarction is ameliorating of the other factors. For example, they are high blood pressure, obesity and cigarette smoking. (Boss & Seegmiller 1981, 436.)

4.4.2 Understanding about life changes after suffering heart attack

Understanding about life changes after a heart attack is crucial for both seniors and caregivers to make a successful recovery. It is essential for them to understand medications as well as changes in life style.

Otherwise, damage level of heart or how severe of heart attack affects directly to recovery time. Moreover, recovery takes less or more weeks which also depends on age of patients. For example, older adults aged 65 and over take at least 8 weeks to full recovery after heart attack due to more complications and less active than younger people. In contrast, there is also person who can recover right after one to three weeks.

Furthermore, some elderly people from a heart attack will need to stay at hospital longer or require home care services along with nursing care if they back to home. (Stringer 2017.)

Turning to the details, medication is considered as an important factor creating a successful recovery. Commonly, medication for heart attack treatment comprises aspirin, beta blockers, ACE inhibitors and statin. The drug' types and dosage are various and different between each other. Therefore, the caregivers should figure out important information about medicines which used to treat heart attack. (Stringer 2017.) For example, important information about aspirin includes what is aspirin? Dosage information, side effects, interactions as well as aspirin patient tips (Drug.com 2017). Especially, aspirin patient tip, which should be memorized, is that "for suspected heart attack, chew a non-coated 325 mg tablet of aspirin as soon as possible and call 911" (Fookes 2017).

Moreover, the caregiver should read carefully medication prescribed by doctor and help patients take them regularly with correct medicines, doses and right time. It is the key point to promote recovery procedure for patient.

However, patient and caregiver do not understand how important of regularly taking medicines. (Stringer 2017.) As a serious consequence, patient frequently returns to hospital with heart failure (Dr. Fletcher, as cited in Stringer 2017).

Lifestyle changes such as exercise and diet are also concerned as an important factor contributing an optimal health for elderly people having a heart attack (Stringer 2017).

Undoubtedly, doing regularly exercise brings several benefits not only young people but also for older adult even people aged over 65 years old. Regular exercise will help to improve immune, cardio- respiratory, cardiovascular and gastrointestinal function. Moreover, reducing risk of chronic conditions such as diabetes, obesity and heart disease is other benefit of doing physical activities. In addition, physical activities with moderate level is also good and safe for elderly people having chronic disease. (Sollitto 2017.) However, depending on health condition of each patient, physical therapist and doctor will discuss and choose the most suitable exercise program for patient. Therefore, it is important for both relatives and patients to follow instructions from doctor and physical therapist and not try doing other exercise if not permitted by doctor or physical therapist. (Stringer 2017.)

The other change in patient and relative' lifestyle is about diet. Healthy eating habit should be applied every single day. Healthy eating means balance diet or "eating foods in proportions". (Thomassian 2017.) A typical example of heart healthy diet would be eating various types of fruits and vegetables, whole grains such as wholegrain bread or rice every day, two portions of fish per week along with regularly intake omega- 3 fatty acids and limiting amount of saturated fat and salt (6g salt per day is maximum amount). Thus, caregivers and patients need to notice about heart healthy diet. (Thomassian 2017.)

Not only physical changes but also there are several different emotional changes after heart attack. Older patients usually tend to express those

feelings such as frighten and worried about further heart attack, angry and vexatious because of not independent in daily activities as well as depressed and stressed due to staying long time in hospital. (Dr. Fletcher, as cited in Stringer 2017.) Furthermore, patients will get more worried and scare if they have to deal with all challenges in rough recovery time without any support. As a serious consequence, they may think about suicide and show signs of severe depression. Seeking professional support or help is recommended in this situation. Hence, the concern and support of relatives for elderly patients plays an important role in successful recovery. (Stringer 2017.)

4.4.3 The essential methods supporting elderly successful recovery after heart attack

According to the suggestion from Harvard study (2013), if diet of survivors from heart attack is significantly improved, their life will be last longer (Harvard Heart Letter 2013, 8). Therefore, older patients and relatives should concern about a healthy diet after heart attack. A healthy diet, in which patients are recommended to eat more vegetable, fruits, nuts, legumes, whole grains, intake omega 3- fatty acids daily and consume less red meat, processed meat as well as limit amount of salt, polyunsaturated salts, sugar sweetened beverage. It is evidenced by the thesis led by Eric Rimm- an associate professor at Harvard Medical School and Harvard School of Public Health, one fifth of survivors from heart attack improved most significantly diet has less 24% die due to any causes and less 26% die caused by heart problems compare to one fifth of people did not have much changes in diet. (Harvard Heart Letter 2013, 8.)

Furthermore, elderly's relatives need to take chest pain in account. The caregivers should report to doctor all of chest pain which patients have been suffered. In case of slight chest pain, caregivers do not be so panic because slight pain or pressure in chest which is common in older people who already experienced a heart attack. Using medication prescribed by doctor will help to release pain and feel more comfortable. (Stringer 2017.)

Cardiac rehabilitation program is also concerned in speeding patient recovery process. "Cardiac rehabilitation (rehab) is a medically supervised program to help people who have heart attack" (National Heart, Lung, Blood Institute 2016b). The program is special for people having heart attack, other heart conditions and people experiencing heart procedures or surgeries. People can do cardiac rehabilitation program at hospital or in community. (American Heart Association 2015.) The length of program can be various to each other but commonly it lasts about 3 months. For some special cases, patients join in an intensive program within one or two weeks or several hour per day. (Mayo Clinic Staff 2017c.)

Moreover, there are always a team of health care professionals beside helping, training, supporting patients throughout cardiac rehabilitation program. A medical team includes cardiologist, nurse, specialist about nutrition and exercise, psychologist along with physical therapist. Right after the program begins, patient's health condition will be evaluated and kept in track over program. The aims of medical evaluation is to find out a suitable and effective program and ensure safety for patient. (Mayo Clinic Staff 2017c.)

Furthermore, physical activity is also included in cardiac program. Almost low impact activities are recommended for patient because of minor risk of injury, including walking, jogging and rowing. Moreover, patient also can do some other exercises which improve muscle. Otherwise, patient participating cardiac rehabilitation program will receive supporting and guidance from professionals related to lifestyle habits changes such as quitting smoking, eating healthy diet and controlling weight.

In addition, patient also has chance for asking further information about health issues. Certainly, patient will get support some mental problems such as depression or anxiety from mental health specialist. They will help patient strongly face to it. Undoubtedly, the cardiac rehabilitation program brings several benefits for participants. Patients can improve their life quality both physical and mental condition. (Mayo Clinic Staff 2017c.)

5 GUIDEBOOK ABOUT HEART ATTACK IN ELDERLY FOR RELATIVES AND HEALTH CARE PROFESSIONALS

5.1 Development of guidebook

There are plenty of considerations to write a guidebook. First of all, I should notice about language of guidebook. The language is written in guidebook should be easily understandable and avoid jargon or specialized terms. (Hyvärinen 2005, as reviewed in Nurmio & Noterman 2016, 31.)

Furthermore, the writer also needs to ensure comprehensive contents for guidebook and arrange them logically by prioritizing order. I create own outline for guidebook such as the most important part will be described more details at the beginning while less important will be listed below. Moreover, there is no limitation for guidebook pages' number which belongs to writer's decision. (Hyvärinen 2005, as reviewed in Nurmio & Noterman 2016, 31.)

Not only concerning to content of guidebook but also the matter involved in how to present a guidebook is considered. The writer will figure out suitable and effective presentation fitting to each publication method. For example, short text is recommended for guidebook published in the internet. In addition, text also needs to be aligned correctly. (Hyvärinen 2005, as reviewed in Nurmio & Noterman 2016, 31.)

5.2 Target group and utilization of guidebook

The target group of guidebook is elderly's caregivers and health care professionals. However, the guidebook is made also for community with non-profit. The reasons why I emphasis elderly's relatives and health care professionals are that they are the main supporters being willing to help and care elderly patients whenever they need and the risk of heart attack increases by the age.

The purpose of guidebook is to raise everyone's awareness about heart attack especially elderly' relatives and health care professionals. Particularly, the guidebook is aimed at providing comprehensive knowledge about heart attack and guiding to solve emergency situation as well as finding effective ways to support elderly get successful recovery from heart attack.

As a result, it will help to prevent undesired severe complication due to lack of knowledge leading to delayed action or treatment and reduce financial burden of treatment. Furthermore, guidebook is like an additional reference for health care professionals helping them to improve own knowledge, skills and supporting them in patients and relatives' guidance and consultancy.

5.3 Feedback

I have created an online survey (attached in appendice) to collect feedback about guidebook from all Lahti University of Applied Sciences nursing students. Its purpose is to keep improving guidebook both appearance and content in the next version. The survey focuses on assessing appearance, content and outline. In addition, all of answers will be anonymous to respect privacy. Here is the link to guidebook survey: https://docs.google.com/forms/d/1VsUypz4GVvapXa_jXui6Tv1XH8W9mdk_wMw_ixn67cHM/edit.

I have uploaded my guidebook by pdf version and link to the survey into 2 nursing student groups and asking them for feedback. I have got 11 responses. All of participants evaluated that the guidebook is easy to follow and suitable for elderly people' relatives. Otherwise, there are different assessments about guidebook content illustrated by the below chart (Figure 5).

3. Does this guidebook contain enough information for your needs?



11 responses

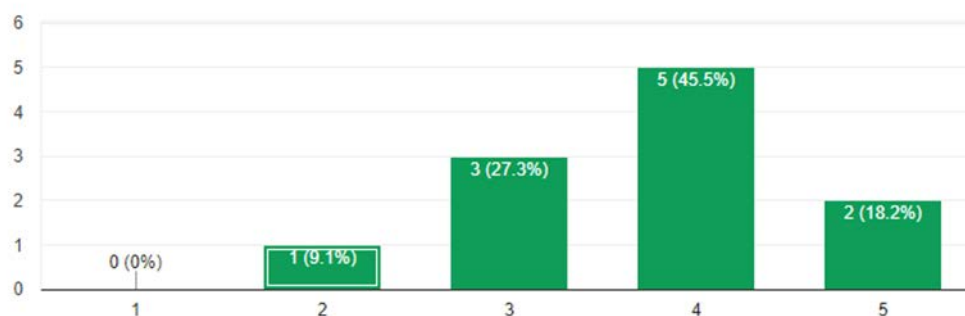


FIGURE 5. Assessing guidebook content

Generally, guidebook includes quite enough information for their needs (Figure 5). However, there are some missing information needed to add into guidebook. Turning to the appearance of guidebook, almost responses are positive particularly well- organized structure, appropriate text font, size and colour. On the other hand, they would like to have more images or illustrated pictures. However, images or illustrated picture must be permitted by authors and the copyright process is also complicated to me. Therefore, I have not used any illustrated pictures or images in guidebook.

Last but not least, additional information written into guidebook is considered. Almost information is related to nursing care field and emergency guideline. In my own evaluation, they absolutely need to be added into my guidebook. I explained more specifically about what to do when someone is having heart attack and cardiopulmonary resuscitation (CPR). Furthermore, I gathered information about nursing management for heart attack patient and wrote them down into the thesis as well as guidebook.

6 DISCUSSION

6.1 Thesis ethical and reliability

I have read carefully guidelines of Finnish Advisory Board on research integrity 2012. The aims of guidelines is to raise awareness and responsibility about conduct of research along with handle misconduct in research. Especially, research ethics or research integrity is mentioned in responsible conduct of research guideline. Research integrity indicates general issue which is honesty and integrity in research. There are nine premises for responsible conduct of research that researchers need to take them into account. For example, the researcher must follow principles of research and standards about scientific knowledge throughout research process. Moreover, the responsibility of data collection and respecting other researchers' work are also mentioned. In some special fields of research, it is compulsory to have research permits. Otherwise, research agreement, personnel and financial management as well as data protection legislation are also described in the responsible conduct of research. (Finnish Advisory Board on Research Integrity 2012.)

I have complied with research integrity according to Finnish Advisory Board on Research Integrity (2012) particularly in data collection and development of guidebook. Data was collected from different reliable sources especially articles, professional articles, research reports are chosen carefully from trusted websites. In addition, all of information written in guidebook bases on data collection in thesis. Guidebook is to share knowledge for everyone particularly elderly' relatives and health care professionals about heart attack. Therefore, research ethics emphasizing integrity, meticulousness and accuracy during data collection process is especially concerned.

However, there are still limitations of my guidebook. Because of language barrier, I could not write it in Finnish and collect feedback to evaluate it from elderly's relatives and health care profesionas.

6.2 Suggestions for further development

I recommend that nursing research about successful recovery from heart attack should dig deeper and be listed more details in next versions of guidebook. I hope that my guidebook will be translated into different languages and shared as much as in community. In future, guidebook design should be more concerned particularly it needs to be more creative and attractive. A typical example of this would be guidebook 3D and attaching with a short video. Short video can be made from video editing software. The attached video is useful for elderly people to easily understanding guidebook. Furthermore, drawing own illustrations on special software is also a suggestion for guidebook design.

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APPENDICES

Guidebook Feedback

Thank you for reading my guidebook. I would like to hear your feedback so I can keep improving content in the next version. Please fill this quick survey and let me know your thoughts (your answer will be anonymous).

1. Do you feel that this guidebook is easy to follow?

I created line scale following the order: 1 to 5 (1: difficult and 5 is easiest)

2. Is this guidebook suitable for elderly people's relatives?

Multi choice: Yes/ No/ Maybe

3. Does this guidebook contain enough information for your needs?

Line scale: 1 to 5 (1 is too less and 5 is full)

4. What do you think about the appearance of the guidebook? (Text font, size, color, image, diagram, layout...?)

5. Which information should be added into guidebook?



4/15/2018

A HEART ATTACK IN ELDERLY PEOPLE

The guidebook for relatives and
health care professionals

The author: Ngan Phan
Nursing Student (LAMK)

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1 Introduction

What is heart attack in elderly people?

Heart attack is also called as myocardial infarction (MI). Myocardium is a different name of heart muscle and death of tissue because of sudden cutting off blood is named as infarction. Hence, “heart attack is the death of a bit of heart muscle– big or small”.

The increase of myocardial infarction is significant with age. When aging, the artery’s wall becomes thicker due to increase in reproduction of intima, collagenization and accumulate of calcium and phosphate. Another reason causing the thickening and hardening wall of coronary artery is involved in arteriosclerosis. Arteriosclerosis is the building up of plaque in wall of artery causing narrowing and hardening artery. Plaque is formed mainly by fat, cholesterol and calcium.

What is this guidebook?

This guide book was made to share critical knowledge about heart attack and handling with emergency situation and supporting patient in recovery stage. All of information written in the guidebook has been collected from scientific research, professional articles and reliable website such as National Heart, Lung and Blood Institute (USA).

Liability restriction

Guidebook is like a reference for sharing basic knowledge about heart attack. Please notice that information in guidebook cannot replace doctor, specialists as well as assessments from medical staffs. So please follow doctor’s instruction and other professional medical staffs’ guidance.

2 What should you know about heart attack?

2.1 Symptoms

- ✓ Chest pain
- ✓ Other painful areas (arms, left shoulder, elbows, jaw and back)
- ✓ Shortness of breath
- ✓ Vomiting
- ✓ Feeling light-headed
- ✓ Cold sweating



Heart attack symptoms are not always same in everyone.

Common symptoms in women	Long term diabetes people
<ul style="list-style-type: none">✓ Shortness of breath✓ Nausea✓ Vomiting✓ Pain in jaw and back	<ul style="list-style-type: none">✓ Maybe not feel chest pain

2.2 Complications

Heart attack can cause several serious complications quickly leading to death. There are three main complications including cardiogenic shock, cardiac arrhythmia and heart failure.

- ✓ Cardiogenic shock is severe complications from severe heart attack which can be fatal up to 80% cases
- ✓ Cardiac arrhythmia can cause sudden cardiac arrest
- ✓ Heart failure does not recuperate due to damaged heart valve and broken heart valve ligament.

2.3 Risk factors and tips for reducing risk

Risk factors

- ✓ Tobacco smoking
- ✓ Unhealthy diet (eating too much food, fat, sugar, salt or less fruit and vegetables)
- ✓ Lack of physical activities
- ✓ Certain health problems (high blood pressure, high blood cholesterol and high level of blood sugar)
- ✓ Others (metabolic syndrome, chronic stress and certain medicines)



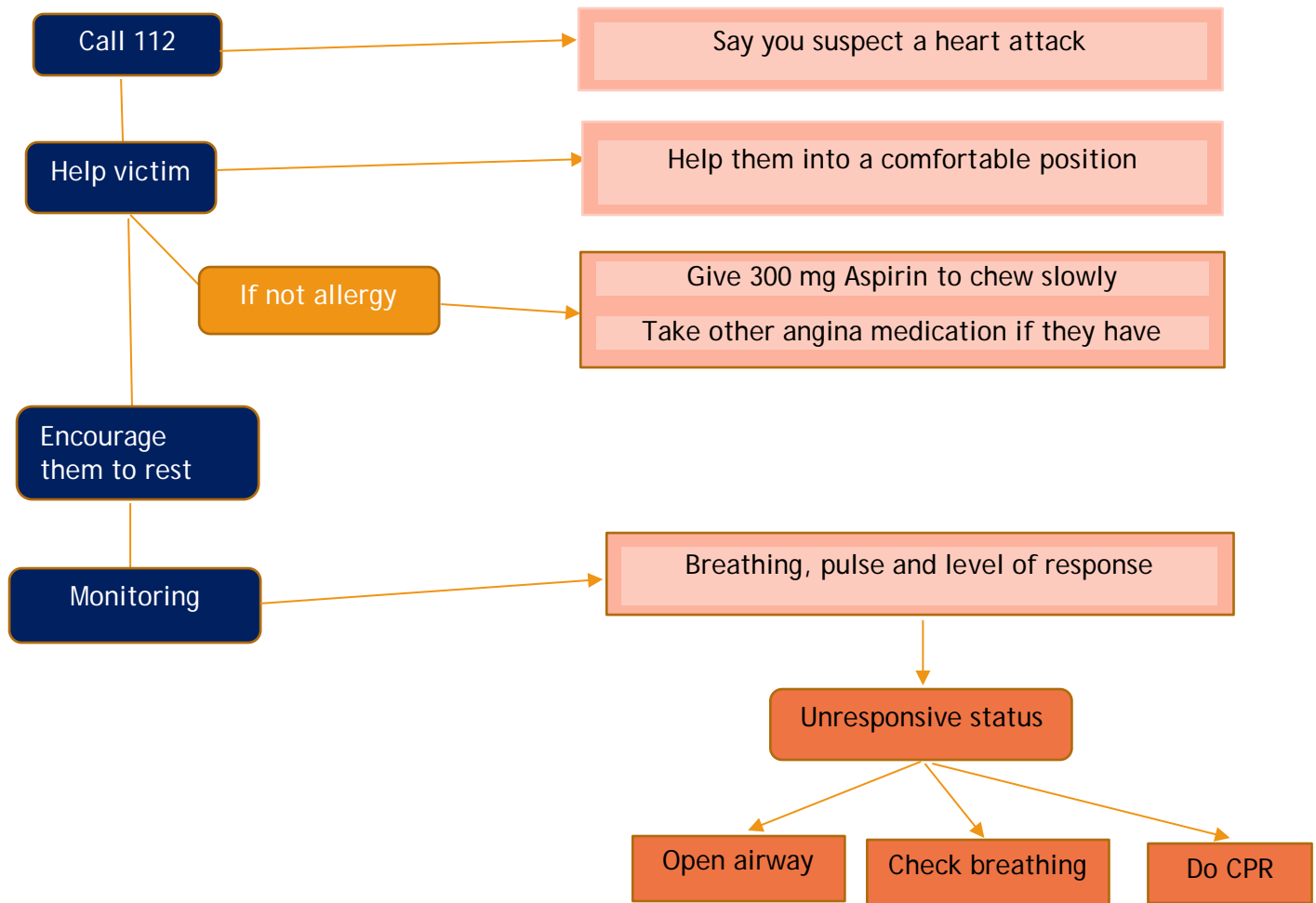
Tips for reducing risk

- ✓ Stop using tobacco products
- ✓ Do physical activities regularly 30 minutes/day
- ✓ Healthy eating habit (5 serving of fruits and vegetables; limiting amount of salt, sugar and fat in diet)
- ✓ Annually check health conditions

2.4 Treatment

- ✓ Using Omega- 3 fatty acids
- ✓ Immediate treatment (taking aspirin, nitroglycerin, oxygen therapy and angina treatment)
- ✓ Treatment at hospital settings:
 - Tests: electrocardiogram (ECG), blood test, coronary angiography
 - Clot- busting medicines: Using thrombolytic drugs to dissolve blood clot inside coronary artery
 - Other medicines: antiplatelet agents, other blood thinning medications, pain relievers, beta blocker and ACE inhibitors
 - Percutaneous coronary intervention: coronary angioplasty (A small mesh tube named stent can be placed in coronary artery in order to remain artery opening long term)
 - Other procedure: coronary artery bypass grafting (surgeon will take a healthy artery or vein from leg, arm or chest of patient and then sew it around the blockage)

3 What to do if an elderly is having a heart attack?



The above diagram has shown clearly step by step to deal with emergency case.

Step 1: Call Finnish emergency number 112 immediately and say you suspect a heart attack

Step 2: Help them into a comfortable position: support head and shoulders with knees bent

Step 3: Give aspirin 300mg dose to chew slowly if they are not allergic

Step 4: Help them to take angina medication (Chest pain medication) if they have

Step 5: Encourage them to rest

Step 6: Monitoring their breathing, pulse and level of response while waiting for help

Step 7: In case of unresponsive status, open airway, check breathing, CPR maybe need to do

✓ What is Cardiopulmonary Resuscitation (CPR)?

It is lifesaving technique which is performed once when patient's breathing or heartbeat is stopped

✓ What are differences between untrained people and professionals?

Untrained people	Professionals or trained people
<ul style="list-style-type: none">☞ Call immediately to 112 before performing CPR and follow proper procedures until paramedics arrive☞ Only chest compressions particularly do it consecutively 100 to 120 compressions a minute☞ Do not need try to rescue breathing	<ul style="list-style-type: none">☞ Begin CPR cycle with 30 compressions and then give 2 rescue breaths in case no pulse and no respiration

✓ Instruction guiding how to do CPR is detailed below.

Step 1: Place him or her lie back down on firm surface

Step 2: Remove clothing out of chest if possible

Step 3: Locate your hand placement for compressions. With your hand draw a line from armpit to center of chest for placement. Place heel of one hand on the lower half of sternum breast bone and then place other hand over the first interlacing your fingers for support with your arms straight, your shoulder positioned over the victim chest.

Step 4: Push down on victim' chest at least 2 inches or 5 cm and 30 deep compressions in 18 seconds or less or at least 100 compressions in a minute. You may lift your hand slightly off the chest between compressions to allow for full chest recoil but keep your hand placement and keep interruptions to minimum

Step 5: Count loud to 30. After 30 compressions you give two breaths. Between breaths, you look for chest to raise

4 Emergency care

- ✓ The core points of emergency care for patients is quick, appreciate and effective treatment along with correct skills, right time and place
- ✓ Emergency department is commonly the interface between patients and emergency care
- ✓ The first interaction between patient and health care profession is initial assessment and triage process
- ✓ Acute myocardial infarction has three stage of development including ischemic, injury and infarction
- ✓ The main initial assessments are content of clinical signs, symptoms, and risk factors and electrocardiogram (ECG)
- ✓ ECG assessment is a useful tool for identifying pathology along with relevant treatment
- ✓ The treatment includes anti- coagulants, anti- platelet agents, thrombolytics, morphine, anti- emetics, glyceryl trinitrate, beta- blockers and statin
- ✓ Percutaneous coronary intervention if needed

5 Nursing management for heart attack patient



5.1 Nursing assessment

- ✓ Asking patients or patients' relatives about detailed clinical symptoms such as chest pain, difficult breathing and sweat. Each symptoms needs to be asked detailed about onset, intensity and lasting time
- ✓ History of illnesses is taken into account. A nurse will figure out detailed information about increasing blood pressure, previous heart attack and other risk factors
- ✓ Reading medical records and monitor vital signs in order to identify clinical manifestations. For example: Heart rate (Pulse): regular or irregular heartbeat? Abnormal heart rhythm?
- ✓ Keeping track of electrocardiogram (EKG or ECG) to recognize complications especially arrhythmia

5.2 Nursing diagnosis

The nursing diagnoses are based on nursing assessment as mentioned above.

- ✓ Chest pain caused by damaged heart muscle and decreasing gas exchange due to blood clots in lung
- ✓ Patient cannot manage physical activities because of oxygen supply and demand imbalance
- ✓ Patient can also have signs of anxiety related to changes in his health condition
- ✓ The other nursing diagnosis can be a decreasing blood flow from heart to organs due to inefficient cardiac tissue perfusion caused by damaged or death of cardiac muscle
- ✓ Lack of knowledge about heart attack is the risk of non-compliance of care plan

5.3 Nursing care plan

The objectives of nursing care plan for myocardial infarction patient is listed below:

- ✓ Chest pain is relieved promptly
- ✓ Improving blood flow from heart to organs
- ✓ No difficulties in breathing, normal breath
- ✓ An gradual increasing in physical activities without chest pain
- ✓ Reducing anxiety
- ✓ Patient strictly complies with care plan

5.4 Nursing interventions

Goals	Nursing interventions
<p>1. Absence of chest pain</p>	<ul style="list-style-type: none"> - Limiting patient's motion to reduce oxygen consumption of heart muscle - In case of hard breathing, semi- fowler position is better for patient - Implement medical command: Administrating Morphine sulfate i.v dosage from 2 mg to 5 mg per one injecting time. Inserting intravenous (i.v) cannula is necessary and helpful when injecting several times <p><u>Notices:</u></p> <ul style="list-style-type: none"> • Avoid intramuscular injection because it hurts patient and affects yeast test result • Observation and assessment breathing rate because of Morphine's side effect- Respiratory depression <ul style="list-style-type: none"> - Implement medical commands to ACE inhibitors or Thrombolytic, something needs to be taken into account: <ul style="list-style-type: none"> • Guiding carefully patient about drugs' usage to get effective outcomes • Tracking blood pressure because these drugs can cause decrease patient's blood pressure - Implement medical command: administering oxygen supply rich oxygen arterial blood reducing chest pain - Observing, assessing chest pain and especially tracking EKG consecutively. Report to doctor immediately if chest pain is not relieved or suspecting abnormalities on EKG
<p>2. Improving blood flow from heart to organs</p>	<ul style="list-style-type: none"> - Relax: is aimed at reducing heart rate so as to decrease cardiac output. - Administering Nitroglycerin dilating blood vessels. - Monitoring and assessing changes in heart rate, rhythm, heart sound, blood pressure, chest pain and urinary output.

Goals	Nursing interventions
3. Improving gas exchange in lung	<ul style="list-style-type: none"> - Let patient lie follow semi fowler position - Administering oxygen therapy following medical command - When absence of chest pain, guiding patient practice deep breathing and frequently change positions to improve gas exchange in lung - Observing and assessing signs of respiratory improvement: absence of dyspnea, tachypnea and crackles, normal breathing rate
4. Increasing gradually physical activities	<ul style="list-style-type: none"> - In case of chest pain, patient is not encouraged moving much in order to reduce oxygen consumption of heart muscle - When patient do not feel chest pain, allow patient do gradually physical activities. They are: <ul style="list-style-type: none"> • Moving limbs when lying in bed • Sitting on bed 2- 3 times, duration 10- 20 minutes • After that, allowing patient do gradually self- care everyday ✓ While patient do physical activities, nurse needs to monitor patient status including heart rate, breathing, and chest pain and sweating.
5. Reducing patient's anxiety	<ul style="list-style-type: none"> ✓ Encourage patient expressing of anxiety feelings. Based on those feelings, a nurse should explain and stay with patient helping them calm down ✓ Observing patient's actions and words to recognize signs of anxiety such as agitation, aggression and hostility. Staying with patient and intervene if needed ✓ Administering anti- anxiety and hypnotics as prescribed such as diazepam, lorazepam, flurazepam and alprazolam

Goals	Nursing interventions
<p>6. Educating health and guiding patient self- care</p>	<ul style="list-style-type: none"> ✓ Guiding patient how to do exercise to recovery after heart attack: <ul style="list-style-type: none"> • Practicing earliest if possible and keep doing to improve coronary circulation • Increasing level and duration of practice especially walking and riding bike • Avoid doing exercises right after meal • Self- monitoring heart rate while practicing. Stop practice when rising heart rate significantly compared to normal heart rate ✓ Guiding patient about healthy lifestyle: <ul style="list-style-type: none"> • Avoid activities causing chest pain such as exertion, sudden cold, sudden emotion and over eating • Advice patient getting enough sleep, eating slowly with small meals, taking enough rest after meals and avoid using stimulants ✓ Limiting maximum or stopping all risk factors: <ul style="list-style-type: none"> • Overweight • Controlling well blood pressure • Managing blood sugar, triglyceride level • Stop smoking ✓ Guiding patient dealing with chest pain <ul style="list-style-type: none"> • Always keep in pocket Nitroglycerin and take immediately one sublingual tablet right after appearing chest pain • See doctor right away if chest pain continues after taking Nitroglycerin, difficulties in breathing, too fast or too low heart rate...

6.5 Evaluation

Patient needs to reach below goals:

- ✓ Absence of chest pain and chest pain does not appear again
- ✓ Improved blood flow
- ✓ Absence of dyspnea, tachypnea and crackles
- ✓ Increasing gradually exercise without tiredness and chest pain
- ✓ Reducing fear or anxiety
- ✓ Knowing self- care after discharge

6.6 Discharge and home care guidelines

- ✓ Educate and guide patient about healthy cardiac lifestyle and self- care
- ✓ Home care nurse helps patient plan and update follow- up appointments with health care professionals
- ✓ Home care nurse directly assists patient complying with prescribed cardiac rehabilitation management, healthy eating habits as well as prescribed medication
- ✓ Home care nurse also has responsibilities for reminding patient about follow- up monitoring such as electrocardiogram (EKG), laboratory tests and general health check- up

6 How to support elderly successful recovery from heart attack?

6.1 Understanding about life changes

✓ Medication

- ☞ figure out important information about medicines (aspirin, beta blockers, ACE inhibitors and statin)
- ☞ read carefully medication prescribed by doctor
- ☞ help patients take them regularly with correct medicines, doses and right time

✓ Lifestyle changes

- ☞ Regularly do exercise: Please to follow instructions from doctor and physical therapist and not try doing other exercise if not permitted by doctor or physical therapist
- ☞ Healthy eating habit: eating various types of fruits and vegetables, whole grains such as wholegrain bread or rice every day, two portions of fish per week along with regularly intake omega- 3 fatty acids and limiting amount of saturated fat and salt (6g salt per day is maximum amount).

✓ Emotional changes

- ☞ frighten and worried about further heart attack
- ☞ angry and vexatious because of not independent in daily activities
- ☞ depressed and stressed due to staying long time in hospital

Notice: Seeking professional support or help when patient thinks about suicide and show signs of severe depression.

6.2 Actions

Healthy diet

Report to doctor all of chest pain

Participate in cardiac rehabilitation program

- ☞ A healthy diet, in which patients are recommended to eat more vegetable, fruits, nuts, legumes, whole grains, intake omega 3- fatty acids daily and consume less red meat, processed meat as well as limit amount of salt, polyunsaturated salts, sugar sweetened beverage
- ☞ Elderly's relatives need to take chest pain in account. The caregivers should report to doctor all of chest pain which patients have been suffered. In case of slight chest pain, caregivers do not be so panic because slight pain or pressure in chest which is common in older people who already experienced a heart attack. Using medication prescribed by doctor will help to release pain and feel more comfortable
- ☞ The following table will present all relevant information about Cardiac Rehabilitation program

Cardiac Rehabilitation Program		
1	What is the program? And for who?	Cardiac rehabilitation is a medically supervised program to help people who have heart attack. It is special for people having heart attack, other heart conditions and people experiencing heart procedures or surgeries
2	How does it last?	The length of program can be various to each other but commonly it lasts about 3 months
3	Who belong a medical team?	A medical team includes cardiologist, nurse, specialist about nutrition and exercise, psychologist along with physical therapist
4	What happen throughout the program?	<ul style="list-style-type: none"> ✓ Patient's health condition will be evaluated and kept in track over program ✓ Physical activity is also included in cardiac program (Low impact activities: walking, jogging and rowing and others to improve muscle) ✓ Patient will receive supporting and guidance from professionals related to lifestyle habits changes: quitting smoking, eating healthy diet and controlling weight ✓ Patient will get support some mental problems: depression or anxiety from mental health specialist

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