



Programme: BSc (Hons) Health and Social Care Level 5

Module: Introduction to Physiology {BMHP5003}

Assignment Title: Heart Attack Presentation

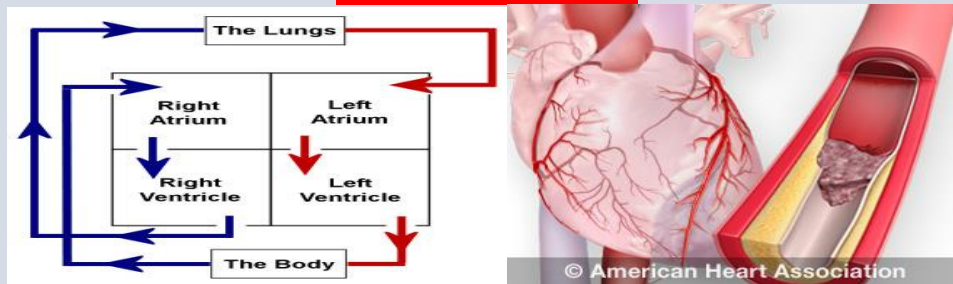
Student Name: Roland Nwaosu

Student number: 1917495

Lecturer: Eleni Koutsogeorgou

Date: 29/07/2021

Heart Attack



(Peate, 2011)

Definition:

According America Heart Association, "A Heart Attack occurs when the blood flow that brings oxygen to the heart muscle is severely reduced or cut off completely". This resulted from accumulated fat, cholesterol and other substances otherwise known as plaque rupturing on coronary arteries" (America Heart Association, 2020).

Physiology:

The job of a heart is mainly to pump blood around the body. The heart is made up of four chambers: right and left atrium (Upper) and right and left ventricles (lower). Septum separates the right side of the heart from left. The four chambers are separated by four one-way valves that open and close with every heartbeat. Heart carries deoxygenated blood from body to lungs where it is oxygenated and taken back to body. (Peate, 2011)

Case Study/Risk Factor:

From Patient A's response to lifestyles questionnaire, she is 48 years, obese with high blood pressure (180/90). She eats mostly junk foods, smokes, drinks alcohol and does not exercise. From answers to lifestyle questionnaires, patient A is prone to heart attack. Generally, there are a number of factors that can lead to heart attack. For patient A, her Risk factors of heart attack includes smoking, high blood pressure, obesity, alcohol, poor diet and lack of exercise.

Intervention:

Based on risk factors inherent in patient A, lifestyles she should adopt include quitting smoking or being watchful of how much she smokes; be conscious of units of alcohol she consumes; take to exercising; and adopt to healthy diet. (Avon NHS, 2021)

References

- America Heart Association, 2020. *watchlearnlive.heart.org*. [Online]
Available at: <https://watchlearnlive.heart.org/?moduleSelect=hrtatk>
[Accessed 20 July 2021].
- Avon NHS, 2021. *Help yourself to a healthy heart*. [Online]
Available at: www.foi.avon.nhs.uk/download
[Accessed 13 July 2021].
- NHS, 2018. *BMI Healthy Weight Calculator*. [Online]
Available at: www.nhs.uk/live-well/healthy-weight/bmi-calculator
[Accessed 17 July 2021].
- Peate, I., 2011. In: *Physiology for Student Nurses*. s.l.:Wiley-Blackwell, p. 585.
- Public Health England, 2018. *Action plan for cardiovascular prevention*. [Online]
Available at:
https://assets.publishing.service.gov.uk/government/uploads/system/uploads/attachment_data/file/648190/cardiovascular_disease_prevention_action_plan_2017_to_2018.pdf
[Accessed 15 July 2021].

This speaker note is for the purpose of supporting the poster above for this presentation.

The presentation is about cardiovascular disease and will specifically dwell on heart attack. First heart attack will be defined and the physiology of it explore. The presentation is supported with a case study of a patient called A. Her response to lifestyle questionnaires will lead this presentation to risk factors of heart attack. These factors will be explained. Finally, interventions (not medical) that may assist the patient to lead a healthy lifestyle to prevent heart attack will also be explored.

A heart attack is a serious medical emergency in which the supply of blood to the heart is suddenly blocked, usually by a blood clot. According to America Heart Association, "A heart attack occurs when the blood flow that brings oxygen to the heart muscle is severely reduced or cut off completely. This happens because coronary arteries that supply the heart muscle with blood can become narrowed from buildup of fat, cholesterol and other substances that together are called plaque. This slow process is known as atherosclerosis". (America Heart Association, 2020). The Symptoms include chest pain, shortness of breath and feeling weak or light-headed. Before I go further and for better understanding of heart attack. I will explain briefly how normal works and what causes heart attack.

Generally, cardiovascular system comprises of heart, blood vessels and blood. According to healthline.com, "Cardiovascular system works to transport oxygen and other nutrients to all the organs and tissues in our body". It does this through two pump system called pulmonary and systemic systems. The heart plays very important role in this system. There are two pictures in the above poster. The first picture from left explains the two systems: All the blue arrows depict pulmonary system while arrows depict systemic system.

Heart is a muscle and about the size of one's fist. It is to body what engine is to a car. Heart is protected by ribs and breastbone. Its daily beat is about 100000. Heart is made up of upper and lower chambers. The number of the chambers are four. At the upper chamber are right and left atrium and the lower chamber are right and left ventricles. A wall of muscle called septum separates the right side of the heart from left. The four chambers are separated by four one-way valves that open and close with every heartbeat: Tricuspid valve separates right atrium from right ventricle; The valve makes sure that blood that flow to right ventricle from right atrium does not go back to right atrium. Mitral valve separates left atrium and left ventricle; just like tricuspid valve, it makes sure that blood does not flow back to left atrium. Aortic valve separates left ventricle and Aorta; and Pulmonary valve separates Pulmonary artery and right ventricle. All the valves work to prevent backflow of blood. The heart beat doctors hear with stethoscope is the open and closing of the valves.

Heart carries deoxygenated blood from body to lungs where it is oxygenated and taken back to body. Veins carry deoxygenated blood from body to right atrium. When the right atrium is full, the tricuspid valve between right atrium and right ventricle opens and the deoxygenated flows to right ventricle. Once the right ventricle is filled, the deoxygenated blood is further transported to lung through vein. On reaching the lungs, carbon dioxide in the blood parts way with it and oxygen is ushered in to replace carbon dioxide and make the blood oxygenated and ready to be transported to left atrium. The transportation this time is done by artery. The oxygenated blood is then transported to left atrium. Once the left atrium is filled and contraction takes place and relaxes, the mitral valve opens and let the oxygenated flow to left ventricle and

further into different parts of the body where after being used, the oxygenated blood becomes deoxygenated blood and the process starts all over again ie it I call circulation of blood.

From the above, it could be seen arteries play very important role. So, in an abnormal situation, the blocking of arteries could lead to heart attack. From the second picture which is arteries, the presence of abnormality could be seen on the wall of the arteries. There are yellow deposits and brown deposits lining and blocking the wall respectively. The yellow deposits will cause narrowing of arteries and that usually precedes blockade. The yellow deposit formation may be as a result of lipid formed due to accumulation of fat, cholesterol and other substances. In any case, the lipid may grow and form a plaque. If this plaque eventually ruptures and produces the brown deposits called blood clot. The blood clot will then either severely or completely block the arteries. The implication is that there would be less blood reaching the heart muscle. The organ then becomes deficient in nutrients and becomes weak. The heart will be starved of oxygen and any prolonged starvation of oxygen will turn into a heart attack, which can be fatal.

Generally, there are a number of risk factors of heart attack. They include

- High blood pressure
- Unhealthy blood cholesterol levels
- Diabetes and
- Obesity.

As well, there are some behaviours that can increase the risk of heart attack. They are

- Eating a diet high in saturated fat, trans fat and cholesterol.
- Lack of exercise.
- High consumption of alcohol.
- Tobacco use.

Health and social care professionals deal with vulnerable individuals on daily basis, so, may be able to suggest to service users on the best way to lead healthy lifestyle that may help to prevent heart attack. In the above capacity and to support this presentation, lifestyle questionnaire was given to a patient called A. The patient is 48 years old. From her response to the questionnaire, it is found that she has high blood pressure. Her blood pressure reading was 180/90mmhg. Her body mass index is 32.5. She eats mostly junk foods and does not exercise. She smokes and consumes a lot of alcohol. Her risk factor that exposes to heart attack include high blood pressure, obesity, alcohol consumption, smoking, poor diet and lack of exercise.

Based on the risk factors above, her best way to prevent heart attack leading a healthy lifestyle.

- She should quit smoking. Doing away with addiction is not easy but through gradual process. There are help available on NHS. She can start by registering with anti-smoking association.
- She should stop consuming alcohol or drastically reduced the quantity she takes. Again it is easy waking easy waking up to say “I am not drinking alcohol again”. She should first stick to NHS recommended intake of alcohol which is 14 units a week.
- She should take to exercising. She should take off by indulging in walking. It could be 30 minutes or an hour a day.

- Adopt to healthy diet. She should do away with processed food as they contain unhealthy levels of added sugar, sodium and fat.