

Introduction to Physiology

Case study

Coronary arterial disease

Student name: Meriem Azil Fechtal

Student number: 1917245

Introduction

- Mr. X is a 46 year old white male who originates from a deprived background
- He is an alcoholic who consumes about six beers daily
- Mr. X's maternal grandmother has a history of heart disease
- He also notes that diabetes "runs in the family"
- Did not report any previous heart problems

Patient information

- Mr. X eats six packets of sugary chocolate per day
- He does not exercise since he considers his work schedule to be busy as a teller
- His body weight is currently 103 kilograms
- He walks to work which is a few meters from where he lives

Anatomy and Physiology

- Reported chest pains and chest pressure
- Sometimes he feels dizzy or light headed when he walks
- He reported shortness of breath when he walks to and from work
- Feels constant numbness in some areas of the body
- Occasional backaches which have become more frequent

Main health condition

- The symptoms reported point to the onset of coronary artery disease
- This is a type of heart disease
- It is characterized by the symptoms indicated by Mr. X
- It has other symptoms but those are the main ones

Main health condition

- Mr. X is a prime candidate for coronary arterial based on his history and lifestyle
- He has a family history of heart disease
- He eats too much sugar each day and drinks alcohol
- He does not exercise
- He is overweight at 103 kg

Anatomy of coronary arterial disease

- The heart is supplied blood by the coronary artery
- Only arteries supply blood to the heart and other organs
- This assists in the normal functioning
- Fat deposits in this artery interferes with normal blood flow into the heart
- Cutting off normal flow interferes with the flow of oxygen to the organs

Physiology of coronary arterial condition

- Coronary artery disease is caused by cholesterol deposits in the coronary artery
- There is a gradual build up of plaque on the walls of the coronary artery
- Atherosclerosis reduces the flow of blood to the heart (Lee et al. 2018)
- It can lead to the shortness of breath and dizziness

Physiology of coronary arterial disease

- Lipid retention from the diet is usually gradual as the body stores it in form of extra energy
- It is a common issue in people with diabetes mellitus, and are overweight between the ages of 45-55
- It is subject to genetic mutations which could lead to heredity

Health risks

- Plasma Lipoprotein levels
- Inflammation
- Vascular calcification

Health risks

- Family history
- Alcoholism
- Lack of exercise
- Poor dietary choices
- Overweight and obesity
- Age

Test and screening

- Cholesterol screening
- Chest x-ray
- CT scan
- Use of electrocardiogram
- MRI or PET scanning
- Use of ultrasound scan

Management care

- Avoiding consumption unhealthy cholesterol and maintaining a proper diet
- Regular exercise
- Avoiding smoking if any
- Cutting on alcohol consumption

Care improvement

- Applying preventive measures such as constantly watching weight
- Developing an exercise regimen to follow daily
- Engaging in cardio exercises such as jogging
- Completely cutting off the consumption of sugar

Care intervention: surgery

- This includes use of angioplasty and stents to improve blood flow
- Coronary artery bypass graft surgery to get blood to parts of the heart affected
- Heart valve surgery

Care intervention: Medication

- Use of medication to improve blood flow in the artery
- This includes antiplatelet medicines which reduce the platelet ability to stick together
- Statins are used to lower cholesterol and improve arterial health

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