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INTRODUCTION TO PHYSIOLOGY

(BMHP5004_LON)

Assessment Component 1

POSTER

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Submission Date: 27th July 2021

Word count: 877

DIABETES MELITUS

Definition:

Diabetes mellitus is one of the most common systemic diseases in the world and this occurs when the pancreas does not produce enough insulin or when the body cannot effectively utilise insulin. (Barbra J. Ehrmann 2014).

Symptoms:

- feeling very thirsty
- Frequent urination than usual, particularly at night
- Feeling very tired - fatigue
- Loss of weight
- loss of muscle bulk
- itching around the penis or vagina, or frequent episodes of thrush
- wounds that does not heal on time
- Blurred vision

-Many people have type 2 diabetes for years without realising because the early symptoms tend to be general.

-Type 2 diabetes – this is when the body does not produce enough insulin, or the body's cells do not react to insulin

Physiology:

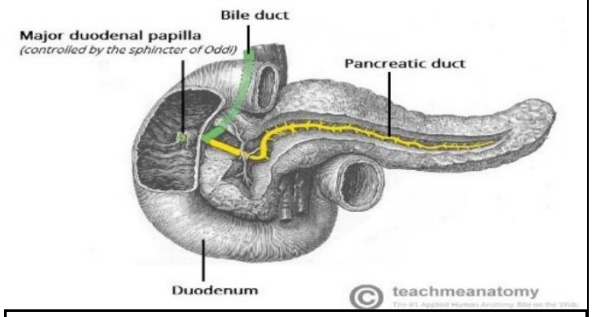
The level or amount of sugar in the blood is controlled by a hormone called insulin, which is produced by the pancreas in the Islet of Langerhans (a gland behind the stomach). When food is digested and enters the bloodstream, insulin moves glucose out of the blood into cells, where it is broken down to produce energy. **This is normal physiology.** (Barbra J. Ehrmann 2014).

-Sometimes the body is unable to break down glucose into energy. This may be due to an inadequate amount of insulin available to move the glucose, or the insulin produced does not work properly (due to diseases of the pancreas or blockade) As a result, the individual develops diabetes. **This is known as abnormal physiology. (**Barbra J. Ehrmann 2014).

Hyperglycaemia (elevation of blood glucose concentration) is a common effect of uncontrolled diabetes and over time this leads to damage to, and dysfunction and failure of many of the body's organs including the eye.

Type 2 diabetes is far more common than type 1. In the UK, around 90% of all adults with diabetes have type 2 (nhs 2019)

THE PANCREAS



Pancreas - The pancreas is responsible for producing glucagon and insulin. Both hormones help regulate the concentration of glucose (sugar) in the blood.

Interventions/Management:

Management of diabetes is systemic.

-Changes in lifestyle, especially exercise.

- Dietary management.

-Drugs that improves the cell sensitivity to glucose production.

-Drugs that stimulates the pancreas to produce more insulin

-The administration of Insulin itself (Gerard G. Tortora 2019).

Complications: Diabetes, regardless of its type gives rise to a variety of systemic complications, most of which are vascular diseases. Among them are ----Retinopathy, Nephropathy, and Neuropathy.

-Cardiovascular diseases (CVDs) consisting of coronary heart disease (CHD),

-Stroke Hypertension and heart failure are also more common in diabetic individuals than in nondiabetic individuals

Case Study:

Mrs K was a middle-aged lady who was born on 1st of January 1976. She has been smoking for almost 15 years ago at the rate of 1-9 stick per day and drinking alcohol at about 4 glasses per day, and without any history stroke, nor heart attack in the family neither herself, she presented with the following data: a raised B/P of 140/90, and history of high cholesterol in family. She weighs 70kg, while the height was 170cm.

Mrs K was not a lover fish, dairy, or mixtures, but likes red meat at least 3-4 times a week. Also love to eat chips and sugary foods, especially chocolate in the evenings while watching the TV.

With the above, Mrs T is liable to develop diabetes because of her weight, high cholesterol history in family and her raised blood pressure.

Mrs K exercise freely in the morning, to shed her weight, and high blood pressure which is risk factor and may cause diabetics.

References:

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SPEAKER NOTE

DIABETES

Diabetes mellitus is one of the most common systemic diseases in the world and this occurs when the pancreas does not produce enough insulin or when the body cannot effectively utilise insulin. (Barbra J. Ehrmann 2014)

- It is estimated that the prevalence of diabetes for all age groups worldwide was 8.3% in 2011 and will be 9.9% in 2030. The International Diabetes Federation (2013)
- Since 1996, the number of people diagnosed with diabetes in the UK has risen from 1.4 million to 3.5 million (Diabetes.co.uk)
- An average proportion with over 9% population of the world now diabetic according to WHO (world Health Organisation)
- Pancreas - The pancreas is responsible for producing glucagon and insulin. Both hormones help regulate the concentration of glucose (sugar) in the blood.

Symptoms:

- Polyuria – excessive urination
- Polyphagia – Excessive eating
- Polydipsia-

Physiology:

When food is digested and enters the bloodstream, insulin moves glucose out of the blood into cells, where it is broken down to produce energy. This is normal physiology. (Barbra J. Ehrmann 2014).

This may be due to an inadequate amount of insulin available to move the glucose, or the insulin produced does not work properly (due to diseases of the pancreas or blockade) As a result, the individual develops diabetes.

Management:

-Diet

-Exercise

- Drugs/ Injection

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