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Diabetes mellitus: A short note for budding learners

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Diabetes mellitus, which is commonly known as diabetes is one of the global diseases and its prevalence is increasing rapidly. The food that we eat contains carbohydrates, which are broken down into a sugar called glucose. This glucose gets absorbed from the blood by insulin, which is a hormone that helps in either storing or using blood sugar. A condition called hyperglycaemia is observed in people with diabetes where their body cannot produce enough insulin or would not be able to utilise the available insulin. This condition increases the amount of glucose in the blood. There are several causes for hyperglycaemia that include, consumption of more food than usual, lack of exercise or physical activity, emotional stress, hormonal level changes, etc. There is another hormone produced in our body called glucagon, which increases blood sugar levels. Both insulin and glucagon are produced in the pancreas by islets of Langerhans. Insulin binds to the insulin receptors of the cells and allows the binding of glucose transporter to the cell membrane; whereas, glucagon helps the liver to produce more glucose or breakdown glycogen into glucose. There are two types of diabetes and they depend on the mechanism that causes the blood glucose level to rise. In type 1 diabetes, the body cannot make enough insulin and that is because of the cell-mediated immune response and genetic abnormality where the body’s own T cells attack the pancreas and destroy beta cells which produce insulin. The symptoms include polyuria, polydipsia, etc. In diabetes type 2, the cells have insulin resistance where insulin will not be able to bind to the insulin receptor and hence the glucose transporter will not function. As a result, the glucose level increases in the blood. The symptoms here include polyuria, polydipsia, polyphagia and glucosuria. Hence, if the blood glucose level is higher than normal, immediate care is necessary by meeting the physician. Taking insulin shots or any other medications would help to some extent but regular exercise, consumption of food that contains low carbohydrates, drinking enough water, etc. should be practiced along with the medications to lead a healthy life.

Keywords: Glucose, Insulin, Beta cells, Polyuria, Polydypsia, Diabetes, Hyperglycaemia

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