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COMPLICATION OF DIABETES MELLITUS IN DIABETIC PATIENT

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ABSTRACT

Diabetes mellitus is a metabolic disorder where the glucose level in the blood is increased due to less insulin or less insulin receptor. Insulin is a hormone secreted from the β-cell of islets of pancreas. It helps in the transportation of glucose from blood to cell. So, on less insulin or less insulin receptor, the glucose cannot enter to cell. The glucose level in the blood is increased or hyperglycemia condition is developed. Diabetes mellitus is of two types, Type-I and Type-II. The Type-I diabetes mellitus occur due to less insulin and the Type-II diabetes mellitus occur due to less insulin receptor or insulin resistance. The different complications arised due to diabetes are hyperglycemia, polyuria, weight loss, ketoacidosis, hypertension and severe complications arised like myocardial infarction, kidney failure, blindness, neuropathy. Mostly death happen in diabetes due to these severe complications.

KEYWORDS: Diabetes mellitus, Hyperglycemia, Polyuria, Hypertension, Kidney failure, Myocardial infarction.

INTRODUCTION

Diabetes mellitus

It is a metabolic disorder where the glucose level in the blood is increased due to less insulin or less insulin receptor. Insulin is a hormone secreted from the β-cell of islets of pancreas. It helps in the transportation of glucose from blood to cell. So, on less insulin or less insulin receptor, the glucose cannot enter to cell. The glucose level in the blood is increased or hyperglycemia condition is developed.

Diabetes mellitus primarily divided in to two types-

(1) Type-1

(2) Type-2

(1) Type-1

It is an autoimmune disorder, where due to autoimmune reaction the β-cells of the pancreas is destroyed, So the insulin level in the body is decreased. Due to less insulin, the glucose cannot enter to the cell. The blood glucose level is increased or hyperglycemia developed.

So, in this case the person takes the insulin from outside or the person depends on the insulin for lifetime. Due to this the type-1 diabetes mellitus is known as Insulin Dependent Diabetes Mellitus (IDDM). The type-1 diabetes mellitus mostly occurred in child or at younger age, so for the type-1 diabetes mellitus is also known as Juvenile onset diabetes mellitus.

(2) Type-2

It is a genetic disorder where the insulin receptor level at cell or tissue site are decreased, so the sensitivity of the tissue towards the insulin is decreased. The glucose cannot enter to cell. The blood glucose level is increased or hyperglycemia developed.

So, in this case the person takes such drugs which increase the level of insulin receptor or the increase the secretion of insulin from pancreas. In type-2 diabetes mellitus insulin present in the body, so the person cannot take the insulin from outside or the person cannot depend on the insulin. Due to this the type-2 is known as Non-insulin Dependent Diabetes Mellitus (NIDDM). Most of the diabetes mellitus cases are of type-2 and it is mostly occurred above the age of 40. So, for the type-2 diabetes mellitus is also known as maturity onset diabetes mellitus.

Besides the Type-1 and type-2, the diabetes mellitus or hyperglycemic condition also develop in pancreatitis, Cushing syndrome. In some cases, during the period of pregnancy diabetes also develops (Gestational diabetes).

Complications of Diabetes mellitus[1-5]

The different complications raised due to diabetes mellitus are:

(1) Hyperglycemia

Due to less insulin or insulin resistance, the glucose cannot enter to the cell. So, the blood glucose level is increased.

(2) Glycosuria

Due to excess glucose in blood, more glucose come to the filtrate site during the glomerular filtration. So, beyond the threshold maximum, the excess glucose is excreted through the urine.

(3) Polyuria

Due to more glucose in glomerular filtrate, the osmotic pressure of the filtrate is increased. So, the water cannot be reabsorbed. Along with the glucose more water is excreted out.

(4) Polydipsia

Due to more excretion of urine, the water level in the body decreased. So, to compensate it, the thirst is increased.

(5) Weight loss

Due to less glucose in the cell, the cells utilize other non-carbohydrate source for the formation of energy. So, breakdown of protein occurs and amino acid help in the formation of energy. Due to protein breakdown muscle weakness and weight loss occur.

(6) Ketoacidosis

Due to deficiency of glucose in the cell, the cells utilize the fatty acid and glycerol for the formation of energy. Due to fatty acid metabolism, more ketone bodies are formed, which leads to ketoacidosis.

(7) Hypertension

Due to increase of blood glucose level, that glucose is deposited on the wall of artery. So, wall thickness of artery is increased also the elasticity of the wall of artery is decreased. Due to this pressure of the blood on the wall of the artery is increased.

(8) Renal failure

Due high blood glucose level, the glucose is deposited in the wall of capillaries. So, narrowing of capillaries occur. And due to high pressure on the wall of capillaries, the destruction of capillaries occur. So, the blood supply to organ side is decreased. Due to decrease of blood supply the nephrons are destroyed and renal failure occur.

(9) Blindness

Due to decreased of blood supply to retina, the retinal cells are destroyed. So, blindness occurs.

(10) Neuropathy

Due to decreased of blood supply to neuron, the neurons are destroyed. In case of Diabetes the glucose supply to the neuron is decreased so the neurons are destroyed because neurons only utilize the glucose for the formation of energy.

(11) Infection

Due to less glucose supply to WBC, the phagocytic activity of WBC is decreased or immunosuppression occur. So, the chances of infection is increased. So the healing of wound cannot occur properly or take long time.

CONCLUSION

So, the different complications are arised due to diabetes mellitus. Some common complication like polyuria, weight loss, ketoacidosis occur. But the long-term complications like Hypertension, Myocardial infarction, Renal failure are arised, which are fatal to the body or mostly the death occur due to these severe complications.

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