

Can patients with type II diabetes become type I?

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ABSTRACT

Diabetes mellitus (DM) is a metabolic disorder that identified by hyperglycemia. The disorder in carbohydrate, fat, and protein metabolism that is related to diabetes, are due to deficient action of insulin on the target tissues. There are many people that suffering from type II. It is believed that type II diabetes can't turn into type I diabetes, as the two conditions have different causes and this is true. We have another opinion as we know type II diabetes is a progressive condition. Over time the pancreas become more lazy and people with type II diabetes may finally require insulin for their treatment. So, the main objective of this commentary discusses if patients that suffering from type II could convert to type I or not.

Introduction

Diabetes mellitus (DM) is a metabolic disorder that identified by hyperglycemia. DM generated due to disorder in insulin secretion, action, or both [1]. The disorder in carbohydrate, fat, and protein metabolism that is related to diabetes, are due to deficient action of insulin on the target tissues. If ketone bodies are found in the blood or urine of diabetic patients, treatment is urgent, because ketoacidosis can develop rapidly [2]. Type I is an autoimmune disease that recognized by total destruction of the pancreatic β -cells so it identified by insulin deficiency and requires insulin injection for its survive [3]. The causes of type 1 diabetes are divided to immune and idiopathic reason. The immune is the ultimate common sort of type 1 diabetes. The patients with this sort are teeny [4], whilst the cause of Type II is insulin resistance and it is cured via the administration of synthetic drugs [5]. Type II diabetes is the generality common form of the diabetes it exist in 90% of the cases, it identified by tissue resistance to the action of insulin which a combined with a relative deficiency in insulin secretion. Insulin is already produced by the β -cells in these patients however, it is inadequate

to overcome the resistance, that cause the blood glucose to increase. The impaired insulin action also affects lipid metabolism, leading to increased free fatty acid flow and triacylglycerol levels and decrease the good lipid high-density lipoprotein (HDL). Individual with type II diabetes do not have ketosis [4]. The differentiation between the two common types of diabetes, type I and type II has important inclusion for both therapeutic approaches [6]. Measurement of diabetes related autoantibody markers, for e.g. Islet cell cytoplasmic antibodies (ICA), glutamic acid decarboxylase (GAD), insulin Autoantibodies (IAA) and haemoglobin A1c (HbA1c) may be helpful in some condition [7].

Measurement of fasting insulin or C-peptide perhaps be beneficial parameter in the differentiation between both type I and type II diabetes. Fasting insulin and C-peptide levels are commonly normal or elevated in type II, although not as high as might be expected for the degree of hyperglycemia [8]. If patients depend in their treatment on insulin, measuring C-peptide is favorable when the glucose is high more than >8 mmol/l, will detect if endogenous insulin secretion is still occurring or not.

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KEYWORDS

- Type I diabetes
- Type II diabetes
- Pathogenesis of diabetes

Pathogenesis of type I diabetes

Body have an ultimate reduction of insulin secretion and are prone to have ketoacidosis, this is due to T-cell mediated pancreatic islet β -cell destruction, which happen at a variable rate, and becomes clinically symptomatic when 90% of pancreatic beta cells are destroyed [9]. Serological markers of an autoimmune pathologic process, which include islet cell, GAD, IA-2, IA-2 β , or insulin autoantibodies, are present in 85-90% of fasting person with high blood glucose level [10]. Autoimmune type 1 diabetes is determined by multiple genes; there are more than 40 distinct genomic locations that provided evidence for association with T1D [11]. The human leukocyte antigen (HLA) genes having the strongest known association, there is linkage to specific combinations of alleles at the DRB1, DQA1 and DQB1 loci, with both susceptible or protective haplotypes [12]. Persons with diabetes at increased hazard of developing type 1 can often be identified by measurement of diabetes that associated autoantibodies, genetic markers and glucose tolerance testing [13]. The chemical or viral environmental can initiate pancreatic beta cell destruction remain largely unknown, however, the process begins months to years prior the manifestation of clinical symptoms [13].

Pathogenesis of type II diabetes

It is obvious that the link between pathological insulin secretion and action which results in the metabolic defect which classified as type II diabetes is complex. Both of β cell dysfunction and insulin resistance are important in the pathogenesis of type II diabetes [14]. In advanced diabetes, there is a hyperglycaemia but, insulin levels are analouge to those of non-diabetic controls. This can be explained in two ways: a given insulin level is less efficient to lower blood glucose level providing evidence for the importance of insulin resistance; alternatively, higher glucose concentrations in disease are only able to elicit the same level of insulin secretion, implicating the importance of β cell dysfunction [14]. The impairment of the body's capability to respond to insulin is the first demonstrated abnormality in diabetes, then pancreatic exhaustion occurs. This is supported by the observation that some normoglycaemic subjects display an insulin resistance of a level comparable with that of diabetic subjects [15]. Insulin secretion as the first and major genetic factor predisposing to type II diabetes.

Whichever defect begin the disease development, it then leads to the development of the second abnormality. furthermore, both defects must be present before significant glucose intolerance ensues. There has been a trend to increasing the number of type II diabetes amongst children in last decade, that has been related to obesity and physical inactivity [16]. This suggests that in the 21st century insulin resistance from is acquired factors that may be arise as a significant contributor to the pathogenesis of type II diabetes and shows more serious health problem. The question here can patients with type II diabetes become type I? It is believed that type II diabetes can't turn into type I diabetes, as the two conditions have different causes and this is true. We have another opinion as we know type II diabetes is a progressive condition. Over time the pancreas become more lazy and people with type II diabetes may finally require insulin for their treatment. So, patient with type II diabetes should practice regular exercise as exercise plays an important role in the prevention and control insulin resistance, prediabetes, gestational diabetes mellitus, type II diabetes, and diabetes-related health complications [17]. Weight loss is the most important thing you can do to control your blood glucose levels by allowing the insulin to be more effective and reducing insulin resistance it should be less than ideal weight as belly fat creates hormones and other chemicals that can cause health problems, as insulin resistance, high blood pressure, and heart disease. Moreover, type II diabetes should monitoring their blood glucose level, take their diabetes medication regularly and it's important to focus your diet on high-fiber, low-fat foods and restrict takeaway food.

Conclusion

Patient with type II diabetes should practice regular exercise as exercise plays an important role in the prevention and control insulin resistance, type II diabetes, and diabetes-related health complications, they also should restrict their weight to control their blood glucose levels by allowing the insulin to be more effective and reducing insulin resistance and they should monitoring their blood glucose level, take their diabetes medication regularly and it's important to focus your diet on high-fiber, low-fat foods and restrict takeaway food as the pancreas of type II diabetes become more lazy and people with type II diabetes may finally require insulin for their treatment.

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