

Type 1 diabetes mellitus and its oral tolerance therapy

Mao RF *et al.* T1DM and its oral tolerance therapy

Abstract

As a T cell-mediated autoimmune disease, type 1 diabetes mellitus (T1DM) is marked by insulin defect resulted from destruction of pancreatic β -cell. Understanding of various aspects of T1DM, such as its epidemiology, pathobiology, pathogenesis, clinical manifestations and complications, has been greatly promoted by valuable research performed during the past decades. However, these findings have not been translated into an effective treatment. The ideal treatment should safely repair the destroyed immune balance in a long-lasting manner, preventing or stopping the destruction of β -cell. As a type of immune hypo-responsiveness to the orally administrated antigen, oral tolerance may be induced by enhancement of regulatory T cells (Tregs) or by anergy/deletion of T cell, depending on the dosage of orally administrated antigen. Acting as an antigen-specific immunotherapy (ASI), oral tolerance therapy for T1DM has been mainly performed using animal models and some clinical trials have been completed or are still ongoing. Based on the review of the proposed mechanism of the development of T1DM and oral tolerance, we give a current overview of oral tolerance therapy for T1DM conducted in both animal models and clinical trials.

Key words: Type 1 diabetes mellitus; Immunotherapy; Oral tolerance; Regulatory T cells

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Jan 04, 2020 · **Type 1 diabetes mellitus** (T1DM) is a condition in which the body can no longer produce sufficient amounts of **its** own insulin. As a result, blood sugar (glucose) levels increase and in the absence of supplemental insulin, diabetic coma and death will eventually occur.

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Author: Andrej Janež, Cristian Guja, Asimina Mitrak...

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Sep 15, 2019 · INTRODUCTION. **Diabetes mellitus** (DM) is a chronic metabolic disease characterized by hyperglycemia due to either a deficiency of insulin secretion or resistance to the action of insulin or both[1-3].Chronic hyperglycemia leads to different complications in various regions of the body including the **oral** cavity, so blood glucose control is very critical[].

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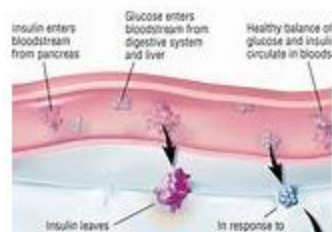
What Is It?

Symptoms

Diagnosis

Expected Duration

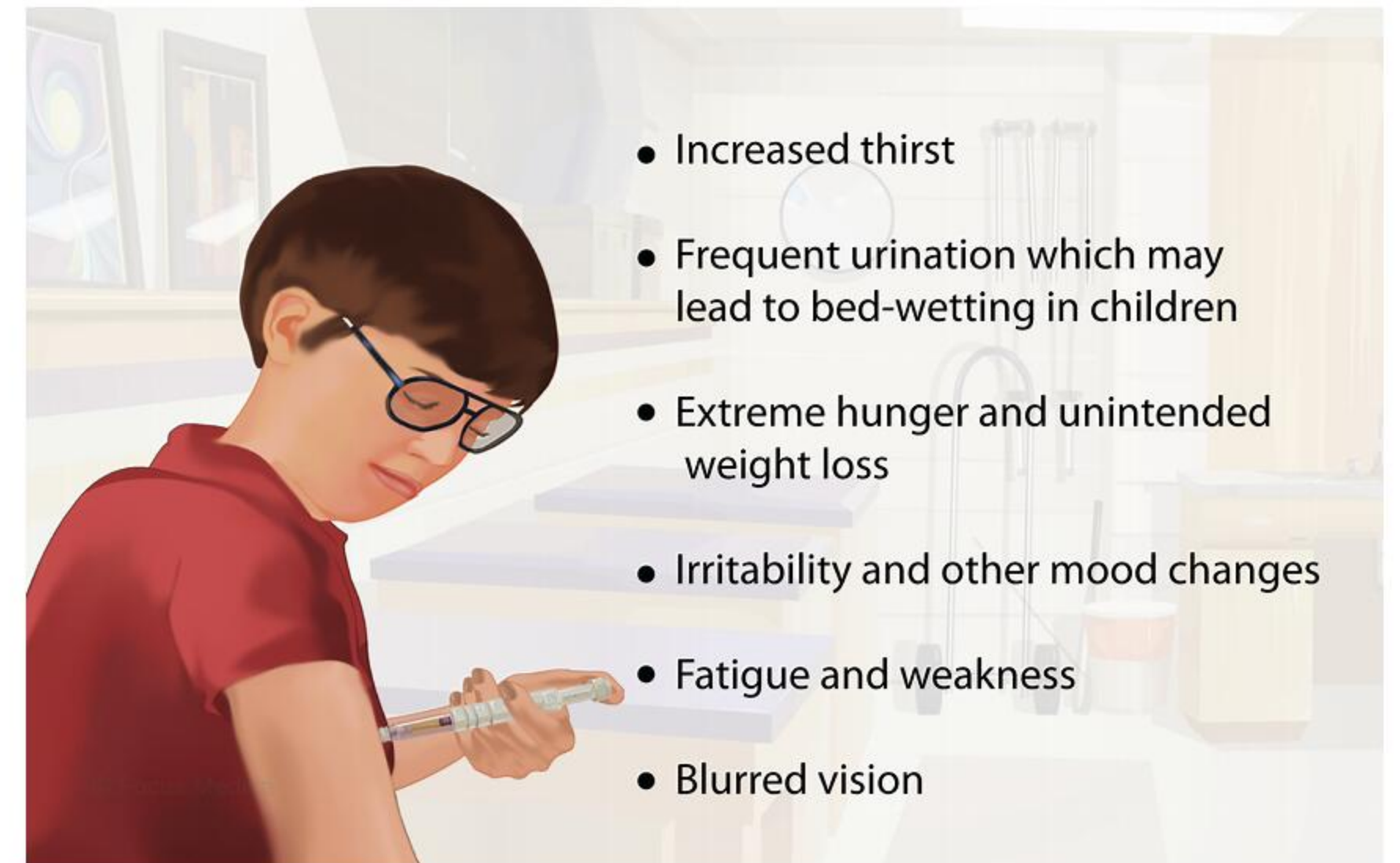
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Type 1 diabetes is a **disease in which the body does not make enough insulin to control blood sugar levels**. Type 1 diabetes was previously called insulin-dependent diabetes or juvenile diabetes.During digestion, food is broken down into basic components.

Type 1 Diabetes

Medical Condition



A chronic condition where the pancreas produces little or no insulin.

Common (More than 200,000 cases per year in US)

Rarely requires lab test or imaging

Treatment from medical professional advised

Can be lifelong

Chronic condition where little or no insulin production is observed due to autoimmune reaction against the pancreas. Most commonly observed

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Oral manifestations in patients with diabetes mellitus

<https://www.ncbi.nlm.nih.gov/pmc/articles/PMC6748880>

Sep 15, 2019 · INTRODUCTION. **Diabetes mellitus** (DM) is a chronic metabolic disease characterized by hyperglycemia due to either a deficiency of insulin secretion or resistance to the action of insulin or both[1-3]. Chronic hyperglycemia leads to different complications in various regions of the body including the **oral** cavity, so blood glucose control is very critical[].

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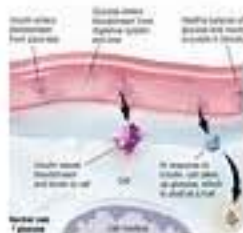
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Type 1 diabetes is a **disease in which the body does not make enough insulin to control blood sugar levels**. Type 1 diabetes was previously called insulin-dependent diabetes or juvenile diabetes. During digestion, food is broken down into basic components. Carbohydrates are broken down into simple sugars, primarily glucose. Glucose is a critically important source of energy for the body's cells. To provide energ...

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Type 1 diabetes - Diagnosis and treatment - Mayo Clinic

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Diagnostic tests include: 1. Glycated hemoglobin (A1C) test. This blood test indicates your average blood sugar level for the past two to three months. It measures the percentage of blood sugar attached to the oxygen-carrying protein in red blood cells (hemoglobin). The higher your blood sugar levels, the more hemoglobin you'll have with sugar attached. An A1C level of 6.5 percent or higher on two separate tests indicates di...

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Type 1 Diabetes

Medical Condition



- Increased thirst
- Frequent urination which may lead to bed-wetting in children
- Extreme hunger and unintended weight loss
- Irritability and other mood changes
- Fatigue and weakness
- Blurred vision

A chronic condition where the pancreas produces little or no insulin.

📊 Common (More than 200,000 cases per year in US)

🧪 Rarely requires lab test or imaging

👨‍⚕️ Treatment from medical professional advised

🕒 Can be lifelong

Chronic condition where little or no insulin production is observed due to autoimmune reaction against the pancreas. Most commonly observed symptoms include excessive thirst, frequent urination, sudden weight loss and weakness. Treatments require endocrinologist input.

Symptoms

- Increased thirst
- Frequent urination
- Extreme hunger
- Unintended weight loss
- Irritability and other mood changes