



A Short Note on Diabetes Mellitus and its Epidemiology and Laboratory

Diagnosis

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Received: 07-Feb-2022, Manuscript No. JOCPR-22-007; Editor assigned: 09-Feb-2022, PreQC No. JOCPR-22-007 (PQ); Reviewed: 23-Feb-2022, QC No. JOCPR-22-007; Revised: 28-Feb-2022, Manuscript No. JOCPR-22-007 (R); Published: 07-Mar-2022, DOI:10.37532/0975-7384-22.14.007.

DESCRIPTION

Diabetes mellitus is a disease characterised by improper glucose metabolism that results in hyperglycemia as a result of insulin inadequacy, insulin resistance, or both. Polyuria, polydipsia, polyphagia, weight loss, headache, tachycardia, palpitations, and blurred vision are all classic indications and symptoms of diabetes. The diagnostic criteria for diabetes have recently been upgraded in order to improve the test's sensitivity. A fasting glucose of 126 mg/dl or higher on many instances, or a random glucose of 200 mg/dl or higher on any time, is currently used to diagnose diabetes. A blood sugar level of 100-125 mg/dl (5.6-6.9 mmol/l) is considered Impaired Fasting Glucose (IFG). An abnormal 2-hour postprandial blood sugar of 144-199 mg/dl is described as Impaired Glucose Tolerance (IGT).

IFG and IGT make up the so-called 'prediabetes' category. These 'new' criteria differ from the World Health Organization's prior diagnostic criteria, which were developed in 1985 (WHO). The WHO criterion recommended that those in the "uncertain range" (blood sugars 140-199 mg/dl) be diagnosed with a single random blood sugar greater than 200 mg/dl (11.1 mmol/l) and those in "the uncertain range" (blood sugars 140-199 mg/dl) be diagnosed with a 75 g Oral Glucose Challenge Test (OGTT). It's vital to note that children with diabetes often have acute signs and symptoms, such as coma or loss of consciousness, critical glucose levels, ketonemia, and severe glucosuria and ketonuria. In children, the diagnosis is made right away (rather than repeating a blood sugar).

Previously, diabetes was diagnosed if the 2-hour post glucose load reading was less than 200 mg/dl. OGTT fasting readings of 140 mg/dl and a 2-hour post glucose load value of 140-199 mg/dl were used to identify impaired glucose tolerance. The WHO suggested adjustments to this method in 1999, lowering the fasting plasma glucose diagnostic value to 126 mg/dl (on two consecutive occasions) and increasing the OGTT value to 200 mg/dl in an asymptomatic

person. The DECODE (Diabetes Epidemiology: Collaborative Analysis of Diagnostic Criteria in Europe) Study looked at the influence of changing diagnostic criteria on the population (DECODE Study Group European Diabetes Epidemiology Group, 1999).

The group with isolated post-OGTT hyperglycemia had a mortality rate that was equivalent to those with diabetes. They concluded that administering an OGTT to those with impaired fasting glucose would result in a 50% rise in the number of senior diabetes. In the United States, diabetes mellitus is a major public health issue. According to the National Centre for Chronic Disease Prevention and Health Promotion, approximately 21 million Americans (7 percent of the population) have diabetes, and another 18 million have prediabetes. The World Health Organization (WHO) considers diabetes to be a "global epidemic" and has invested resources in diabetes screening and primary prevention in order to lessen the enormous impact of diabetes diagnosis and complications.

According to the World Health Organization, nearly 30 million Americans will be diagnosed with diabetes incidentally by 2030 (World Health Organization, n.d.). We recently published an investigation of genes linked to hypertension, cardiovascular disease, and diabetes using a composition alignment method based on a new method for examining DNA sequences to find regions with similar nucleotide composition. We may be able to diagnose type 2 diabetes based on blood butyrylcholinesterase levels or brain derived neurotrophic factor levels, as well as diabetes-related alzheimer's disease. These Pathologic alterations in small and big blood vessels, cranial and peripheral nerves, the skin, and the lens of the eye cause diabetic complications. Damage to the big blood vessels of the brain, heart, and kidneys and extremities are examples of macrovascular problems.