Brief note on diabetes mellitus

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Description

Diabetes mellitus and its consequences (disorders) are clinical disorders of growing importance both from the clinically and epidemiologically. Diabetes has clinical and individual relevance because of its life-threatening acute complications and, more importantly, its chronic problems that affect multiple organs and systems, increasing the risk of ophthalmic, renal, cardiac, cerebral, neurological, and peripheral vascular disease. Diabetes has a significant prevalence in many developed countries and ethnic groups, resulting in premature impairment and death. Its importance at the population level is demonstrated. As a result, both the specialist and the practitioner must be familiar with the pathophysiological causes, clinical symptoms, and, most importantly, diabetes mellitus management. Recent evidence that controlling hyperglycemia can prevent or slow the progression of problems emphasises the significance of finding a treatment that is both appropriate and effective. Indeed, the goal of this concept is to give clinicians with the most up-to-date information on diagnostic features and pathophysiological mechanisms as a foundation for delving into the numerous components of modern diabetes therapy.

According to the standard definition, diabetes mellitus is a disorder characterized by changes in carbohydrate, fat, and protein metabolism caused by a relative or absolute lack of insulin secretion and varying levels of insulin resistance, and is caused by both genetic predisposition and favorable environmental factors. Late complications of long-term diabetes include alterations and failure of various organs (especially those that are non-insulin sensitive), such as the eyes (retinopathy with vision loss), kidneys (nephropathy leading to retinal failure), nerves (peripheral and autonomous neuropathy), heart, and blood vessels (precocious and severe cardiovascular, cerebrovascular and peripheral vascular atherosclerosis). Diabetes mellitus is a syndrome, not a single disease, because it encompasses a variety of etiologically and clinically distinct diseases with hyperglycemia in common.

- **Genetic defects of β-cell function**

The Maturity Onset Diabetes of the Young(MODY) is a genetically heterogeneous monogenetic forms of noninsulin dependent diabetes, characterized by early onset, usually before 25 years of age and often in adolescence or childhood, and by autosomal dominant inheritance. There is no HLA association nor evidence of cell mediated autoimmunity. It has been estimated that 2-5% of patients with type 2 diabetes may have this form of diabetes mellitus. However, the frequency of MODY is probably underestimated. Clinical studies have shown that prediabetes MODY subjects have normal insulin sensitivity but suffer from a defect in glucose stimulated insulin secretion, suggesting that pancreatic β cell dysfunction, rather than insulin resistance, is the primary defect in this disorder.

Assigning a type of diabetes to an individual often depends on the circumstances present at the time of diagnosis, and many diabetic individuals do not easily fit into a single class. For example, a person with gestational diabetes mellitus (GDM) may continue to be hyperglycemic after delivery and may be determined to have, in fact, type 2 diabetes. Alternatively, a person who acquires diabetes because of large doses of exogenous steroids may become glycemic once the glucocorticoids are discontinued, but then may develop diabetes many years

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later after recurrent episodes of pancreatitis. Another example would be a person treated with thiazides who develops diabetes years later. Because thiazides in themselves seldom cause severe hyperglycemia, such individuals probably have type 2 diabetes that is exacerbated by the drug. Thus, for the clinician and patient, it is less important to label the particular type of diabetes than it is to understand the pathogenesis of the hyperglycemia and to treat it effectively.