Diagnostic Criteria and Classification of Type 2 Diabetes including Prediabetes

Pathophysiological Basis for Preventive and Therapeutic Interventions aimed at β-cell Resurrection

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Abstract

Diabetes Mellitus belongs to a group of disorders of intermediatory metabolism, and its diagnosis is essentially based on recognition of ***hyperglycemia*** resulting from *defects in insulin secretion, or in insulin action, or both*. The vast majority of cases of diabetes fall into two broad categories: type 1 characterized by absolute deficiency of insulin secretion, generally due to an immune destruction of pancreatic β-cells; and type 2 where the underlying cause is a combination of insulin resistance and an inadequate compensatory response by β cells.

Since the discovery of insulin, therapeutic interventions have essentially included administration of insulin or its modified versions, insulin analogues, and insulin secretagogues as well as the modalities aimed at lowering insulin resistance through life style modifications, biguanides, or thiazolidinediones. However, *preserving, reviving, or rejuvenating the β-cell to enhance its function has remained elusive as have been the measures to stop progressive deterioration in β-cell dysfunction. An essential prerequisite to achieve this objective is to recognize at the earliest the prediabetic phase.*

As a result of the information based on contemporary science regarding the concept of 'robust' viz-a-viz 'susceptible' β-cell, and a better understanding of mechanisms of impaired β-cell function and reduced β-cell mass, a rational basis for new preventive and therapeutic paradigm namely, restoration of β-cell function and possibly maintenance of β-cell mass, seems to be within the realm of reality. The recognition of a prolonged early prediabetic phase makes it possible to explore new therapeutic avenues which primarily aim at restoration of the β-cell and retarding the progression to overt clinical diabetes. Future therapeutic strategies will not only aim at metabolic normalization but may also endeavour to restore, rejuvenate and resurrect the β-cell in the prediabetic phase, and in early T2DM.