

Stress Induced Diabetes Mellitus in Mother and Foreign Language Speakers

Language is a fundamental form of communication. Inner thoughts and emotions are expressed in the form of language. Left side of the human brain controls speech. The left part of the temporal lobe helps children to acquire language. The first language which a person learns and uses in his homeland is called mother tongue or native language. The second language that a person learns in his life normally undergoes a stress situation during speaking. This stress situation can be observed when second language is not spoken regularly. If the stress is not handled properly it makes biochemical as well as physiological changes. Stress in humans is due to the interaction with environment and between persons. In biological context, stress is emotional, physical as well as mental factor that is responsible for bodily and psychological tension and it may be due to external as well as internal factors.

Levels of blood glucose and hormone are altered in stressful conditions. In diabetic conditions, blood glucose level is raised due to mental stress, particularly in type 2 diabetes. Stress blocks the synthesis of insulin that is responsible for the management of blood glucose in biological system. Stressful environment unmask diabetes (hyperglycemic) state. At cellular level oxidative stress is increased in response to hyperglycemia in vascular tissues in diabetic condition. As a result, not only cellular membrane lipids undergo peroxidation but also oxidative based modification of DNA as well as amino acids is enhanced. Stress hormones that are synthesized to cope with short-term stress are also associated with long-term stress condition including mental stress (Fig.-1). In response, hyperglycemic condition persists for long duration in the blood because stress hormone directly antagonizes the effect of insulin.

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Death of β -cells has been suggested a common feature of diabetes including both types 1 and 2. Expression of inflammatory cytokine especially IL-1 β triggers apoptosis of β -cell. Progressive loss of these cells leads towards the diabetes. Short-term as well as long-term stress is also responsible for damaging of β -cells. It was concluded by number of studies by different researchers that stress during speaking the foreign language may affect the secretory defects of β -cells and lead to the diabetes.

