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IVGTT as a most effective but lost method of diabetes diagnosing (theoretical and practical aspect)

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Corrected method for analysis of intravenous glucose tolerance test (IVGTT) data is proposed that simultaneously estimates the rate of glucose disappearance from the blood (k -value) and the index of hepatic glucose production (HGP) during test. In an application of the method to IVGTT data for 107 subjects, 27 diagnosed with type 2 diabetes (T2D), 13 with type 1 diabetes (T1D) and 67 healthy volunteers. Based on application of mathematical model of IVGTT data, two discriminating functions were obtained: distinguishing T2D from non-diabetic subjects and distinguishing T1D from T2D subjects. The 9% of non-diabetic subjects with high HGP estimates also had high k -parameter estimates. This is a pathological condition called "impaired glucose balance" (IGB) and could be considered as the earliest, pre-impaired glucose tolerance (pre-IGT) and pre-impaired fasting glucose (pre-IFG) stage of T2D. One can distinguish four variants of glucose disbalance in overt diabetics depending on the k and H parameter values. It is apparent that seven subtypes of overt diabetes can be distinguished when one considers a combination of four types of glucose disbalance and two types of diabetes. It is assumed that various subtypes may be expected to respond in different manner to therapeutic interventions.

Biography

Alexander Dreval completed PhD at the age of 25 years and postdoctoral studies from 1st Moscow Medical Institute. He is the director of Endocrinology Department of Moscow Regional Research Clinical Institute. He has published more than 300 papers in reputed journals and has been serving as an editorial board member of reputed.

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