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# **17<sup>TH</sup> GLOBAL DIABETES CONFERENCE & NURSING CARE**

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### IVGTT in diagnosing of glucose kinetics dis-balance in diabetic patients

Introduction: IVGTT in diagnosing of glucose kinetics dis-balance in diabetic patients

**Methodology & Theoretical Orientation:** Mathematical method (one compartment model of glucose kinetics) for the analysis of Intravenous Glucose Tolerance Test (IVGTT) data is proposed that simultaneously estimates the rate of glucose disappearance from the blood (the k-value) and index of hepatic glucose production (HGP) during the test.

**Findings:** This method was used for IVGTT data analysis from 107 subjects: 27 diagnosed with DM2, 13 DM1 and 67 healthy volunteers. Based on application of the model to IVGTT data, two discriminant functions were obtained: Distinguishing DM2 from non-diabetic subjects and distinguishing DM1 from DM2 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 DM2. One can distinguish 4 variants of glucose dis-balance in overt diabetics depending on the k and H parameter values. It is apparent that seven subtypes of overt DM can be distinguished when one considers a combination of 4 types of glucose dis-balance and two types of DM.

**Conclusion & Significance:** It is theorized that various subtypes may be expected to respond in different manner to different types of therapeutic interventions. In the oral presentation will be discussed diabetes diagnosing failure in IVGTT and overcome it in our modified method. This method can be useful for in choosing particular diabetic drug, that modify hepatic glucose production in diabetic patients.

#### Biography

Alexander Dreval researches in areas including optimization of treatment and diagnostic methods for diabetes and its complications and mathematical modeling of endocrine systems. He has received the qualification of a Mathematician at M. V. Lomonosov MSU and since 1980 he has been active in the field of mathematical modeling of insulin therapy of diabetes. He has completed PhD 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 repute.

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