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## CLINICAL AND METABOLIC PARAMETERS OF PATIENTS WITH TYPE 2 DIABETES AND SECONDARY INSULIN RESISTANCE

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**Aim:** The aim is to research characteristics of clinical and laboratory data diabetes type 2 patients, who were treated with insulin depends on insulin dosage.

**Methods:** The study and treatment was provided among 68 both sexes patients in the age from 45 to 70 in the in Endocrinology department in the hospital. Patients were divided into 2 groups depending on received insulin (within physiological need or higher): A group (45 patients) receiving insulin  $\leq 40$  U/day, a group (28 patients) receiving insulin  $> 40$  U/day. During the research special attention focuses on the current age and patients' age at the disease beginning, duration of type 2 diabetes, body mass index (BMI). Glycemic control included determination of fasting glycemia, postprandial and glycated hemoglobin (HbA1c); laboratory data: cholesterol, high-density lipoproteins (HDL), low-density lipoproteins (LDL), very-low-density lipoproteins (VLDL), triglycerides, atherogenic index, crude protein, level of creatinine and urea, transaminases level; insulin level and C-peptide.

**Selection Criteria:** Diabetes, secondary insulin resistance, glycemia control and risk factors.

**Results:** The mean follow-up age in both groups was close ( $61.2 \pm 3.9$  and  $62.3 \pm 4.5$  y.o.), however the age of manifestation type 2 diabetes in the second group was much lower -  $48 \pm 4.4$  y.o. ( $54.6 \pm 2.1$  y.o. in the first group). There were patients with a higher rate of obesity in the second group ( $BMI = 34.8 \pm 3.2$  kg/m<sup>2</sup>), then in the first group ( $BMI = 28.8 \pm 2.8$  kg/m<sup>2</sup>) that partly explains a higher demand of exogenous insulin. According to the criteria of daily glycemic control there were not significant differences between groups, however data of pre-prandial glycemia in the first group was higher, but the postprandial glycemia was higher in the second group. The HbA1c in the first group was  $8.23 \pm 0.6\%$  and in the second group was  $9.92 \pm 0.4\%$ . There were no significant differences found in the average data of lipid profile in controlled groups. There was only an upward trend of atherogenic index in the second group patients. Patient with a total daily insulin dose not more than 40 U/day had higher rates of cholesterol, HDL, VLDL and triglycerides. The residual insulin secretion remained intact in both groups. The level of C-peptide in the first group  $1.41 \pm 0.13$ , in the second group it was  $0.93 \pm 0.21$  ng/ml ( $N = 0.78 - 1.89$  ng/ml). The Spearman Rank Order Correlations of HbA1c with C-peptide level was more significant ( $r = -0.39$ ,  $p < 0.01$ ), then the link of this index with the insulin dose ( $r = -0.17$ ,  $p < 0.05$ ).

**Conclusion:** Risk factors for the secondary insulin resistance formation in patients with type 2 diabetes may include: Disease duration more 10 years, a BMI above 34 kg/m<sup>2</sup> and age of manifestation less 50 y.o.

### Biography

Ualikhanova A graduated from the Kazakh National Medical University. S.D. Asfendiyarov in 2009 "Medical faculty" of Almaty city. The internship was held in Astana from 2009 to 2010 in the JSC "Medical University of Astana". In 2010, after completing the internship, she entered the residency JSC "National Scientific Medical Center" of Astana. In 2012, after the termination of the residency, a primary specialization in the specialty "endocrinology" was held at JSC "Medical University Astana".

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