P-0463 – Subgroup of Autoimmune Diabetes in Adults with Type 2 Diabetes

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Background. Diabetes mellitus is a heterogeneous metabolic disorder characterized by hyperglycemia. Methods of definition of etiological subgroups based on physiological features, such as insulin resistance and beta cell failure, autoimmunity are changing over time. The necessity of defining subgroups in type 2 diabetes is evident and has a major impact on the ability to optimize treatment protocol.

Aim. Our objective was the detection of autoimmune diabetes subgroup among patients with type 2 diabetes.

Methods. Adult patients with type 2 diabetes hospitalized to 10-th city hospital were invited to participate in the study. The entry criteria were - duration of type 2 diabetes for three years, therapy with oral antidiabetic drug (OAD), onset of diabetes at the age of 40-45 years and older, excessive BMI (varied from 32,2 to 38.5 kg/m²); 71 patient was enrolled (28 male and 43 female) [fig.1]. General clinical characteristics of participants, history of diabetes, metabolic parameters, complications were analyzed. Pre- and postprandial insulin, C-peptide levels, GAD65 and TPO antibodies in blood serum were measured. Thyroid ultrasound was done in all patients. Thyroid function parameters were checked. The most common treatment regimen was the dual therapy with metformin and another OAD (sulphonylureas), followed by triple therapy with metformin and two additional OAD (sulphonylureas and DPP4).

Results. By the time of hospitalization all patients showed a failure to achieve target glycemic levels. Glycated hemoglobin A1c (HbA1c) ranged from 9.5 to 13%. Among them 54/71 had low C-peptide serum levels (less than the lower limit of the normal range and inadequate increase after a standard breakfast load in 2 hours) [fig.2]. Positive levels of GAD65 antibodies were observed in 32/54 patients [fig.3]. Oral antihyperglycemia therapy with sulphonylureas was discontinued and insulin therapy initiated. The HbA1c levels were checked in 3 months after the start of insulin therapy. The positive changes in HbA1c parameters from the baseline were verified in all of them. Coexistence of autoimmune thyroiditis and type 2 diabetes took place in 28/71 cases [fig.4]. Coexistence of autoimmune thyroiditis and autoimmune subtype of type 2 diabetes was verified in 18/71 patients [fig.5].

Conclusion: coexistence of autoimmune insulinitis and type 2 diabetes in adults is not rare variant and early detection of the subgroup of autoimmune diabetes among the patients with type 2 diabetes is necessary for the proper treatment protocol and earlier start of insulin therapy.

References

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Fig.1. Enrolled patients

Age of 40-45 years and older

BMI varied from 32,2 to 38.5 kg/m²

Results:

Glycated hemoglobin A1c (HbA1c) ranged from 9.5 to 13%.

Fig.2. C-peptide serum levels

Fig.3. Levels of GAD65 antibodies

Fig.4. Coexistence of autoimmune thyroiditis and type 2 diabetes (39%)

Fig.5. Coexistence of autoimmune thyroiditis and autoimmune subtype of type 2 diabetes (25%)