Prevalence of LADA in population diagnosed withtype 2 diabetesmellitus

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---*ABSTRACT*--

*There is a group of patients in whom the physiopathologic key does not stay in insulin resistence but in reducing insulin secretion as an initial event. In these patients with a phenotype such as type 2DiabetesMellitus but with immunology similar to type 1 Diabetes Mellitus, it is described as LADA (Latent Autoimmune Diabetes in Adults).**Aim of the study:**To determine the prevalence of LADA and riskfactors, (important in determining the exact therapeutic attitude).*

Matherials and methods; *The study involved 149 adults, women and men over 30 years of age, with diabetes mellitus for the first time;for less than a year, people were not taking medication from diagnosis. They were randomly selected by ambulatory consultations. Measured in blood pressure., BMI, glycemia COL, TG, HDL, LDL, insulin level, C-peptide level, Anti-GAD.*

Type 2 diabetes diagnosis was established in accordance with WHO (World Health Organization) criteria.

Statistical analysis:*The collected data were analyzed through the SPSS 10.0 statistical package. The correlations between the two variables were using Spearmen and Pearson correlation coefficients. To analyze the differences between several continuous variables, ANOVA One - Way was used. Significant values of p <0.05 (or 5%) were considered.*

Results: *The study included 149 people diagnosed with Diabetes Mellitus type 2 for the first time, respectively 99 males and 50 females*

*The prevalence of LADA was **19.46%** of the study population.*

The average age resulted 43.22 ± 7.1 years.

HTA was present in diabetes mellitus tip2 45% while in LADA 10.34%.

People with LADA in the majority have normal weight while those with type 2 diabetes have overweight and obesity. Dislipidemia is present in the two groups but with predominance of cholesterol in LADA

Conclusion :*As a conclusion to this study was found that in the group of people with LADA, were present a significant number of CVD risk factors including modifiable and non-modifiable risk factors*

I. BACKGROUND

Diabetes mellitus (DM) includes a group of carbohydrate metabolism disorders which is characterized by hyperglycemia and leads to long-term macrovascular and microvascular complications. The prevalence of diabetes mellitus is increasing significantly in most of the developed and many developing countries, and it is of great concern [1, 2]. The worldwide prevalence of diabetes mellitus has risen dramatically over the past two decades. It is one of the most common chronic endocrine disorders affecting millions of people worldwide. The International Diabetes Federation (IDF) data indicates that by the year 2025, the number of people affected by diabetes will reach 333 million. Although all forms of diabetes are characterized by hyperglycemia, the pathogenic mechanisms by which hyperglycemia arises differ widely. American Diabetes Association categorized DM mainly as types 1 and 2 diabetes and the others [3]. Individuals with type 1 diabetes show extensive beta-cell destruction, and therefore no residual insulin secretion, requiring insulin for survival. Autoimmune β-cell destruction is the main cause of insulin deficiency in type 1 diabetes [4]. In some individuals with diabetes, adequate glycaemic control can be achieved with weight reduction, exercise, and/or oral agents. These individuals, that is, patients of type 2 diabetes, therefore, do not require insulin and may even revert to impaired glucose tolerance (IGT) or normoglycaemia [5]. It is mainly a heterogeneous disease with a complex pattern of inheritance. Type 2 diabetes is the commonest form of diabetes constituting about 90% of the total diabetic population, whereas type 1 diabetes constitutes about 10–15% of the diabetic population. Geographic, environmental, and genetic factors all play a major role in the variation of incidence of all types of diabetes. Although diabetes is classified into two major types—type 1 (insulin dependent) and type 2 (insulin

independent) diabetes, there are some forms of diabetes which cannot be classified into either of these categories. One such less recognized and underdiagnosed manifestation of DM appears to affect adults with many characteristics of type 2 diabetes and carries a high risk of insulin dependency progression, the condition known as Latent Autoimmune Diabetes in Adults (LADA) [3]. The usual features of LADA patients reported are onset of diabetes at ≥25 years of age, clinical presentation masquerading as nonobese type 2 diabetes, unlikely to have a family history of type 2 diabetes, initial control of hyperglycemia with diet and oral antidiabetic agents, evolution to insulin necessity within months, and some features of type 1 diabetes such as low fasting C-peptide and positive GAD auto antibodies [6–8]. About 20% of the patients diagnosed with type 2 diabetes may have LADA. This accounts for 5–10% of the total diabetes population, the same number as type 1 diabetes (9)

In dailyclinical practice itusuallyhappensthatevery 40-year-old patient withsigns and laboratoryexaminationsthat talk about Diabetesmellitusisconsidered as Type 2 Diabetes. If the measurement of C-peptide (or insulinemia) and anti-GADantibodyis a routine examinations,wecoulddifferentiate if wehad to insulin-deficiency or insulinresistance, thusdefining not only the type but the therapeutic standing beforeEvery case.

DiabetesPathogenesisiscomplicated by somemetabolic-relatedproblems and in particular the deterioration of insulinsecretion and the inhibition of insulinresistanceisknown to be essential in the primaryType 2Diabetespathogenesis. However, thereis a group of patients in whom the physiopathologic key does not stay in insulinresistence (withhyperinsulinisation) but in reducinginsulinsecretion as a startingevent. In this group of patients with a phenotypesuch as type2DM but withimmunologysimilar to type 1 DM, itisdescribed as LADA (Latent AutoimmuneDiabetes in Adults).

The discovery of this population group over time is important in determining the exact therapeutic attitude weshouldfollow.

Aim of the study:To determine the prevalence of LADA and riskfactors, (important in determining the exact therapeutic attitude).

II.   MATHERIALS AND METHODS

The studyincluded149 adults (50 females and 99 males), over 30 years of age, diabetesmellitus for the first time lessthan a year. All personsdid not receiveanymedicationsince the diagnosiswas made. The subjectswereselected Randomly from the consultations carried out by the Endocrinology Service at University Hospital Center and from the Endocrinology of Tirana specialtiesclinics.
Patients at the time of recruitment received the approval form for inclusion in the study.
The study form was approved by the Endocrinology Service at" Mother Theresa" University HospitalCenter. In maths BP, BMI, glucose level, COL, TG, HDL, LDL, insulinemia, C- Peptide, Anti-GAD . Type 2 diabetes diagnosis was established according to criteria set by the World Health Organization (WHO)

Statistical analysis: The collected data were analyzed through the SPSS 10.0 statistical package. The correlations between the two variables were using Spearmen and Pearson correlation coefficients. To analyze the differences between several continuous variables, ANOVA One - Way was used. Significant values of p <0.05 (or 5%) were considered.

III.   RESULTS

The study included 149 people diagnosed with type 2 Diabetes Mellitus for the first time, respectively 99 males and 50 females
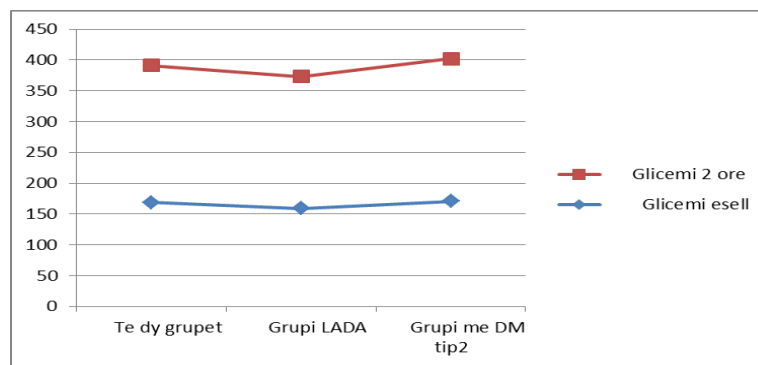The prevalence of LADA was **19.46%** of the study population.
The average age resulted 43.22 ± 7.1 years.

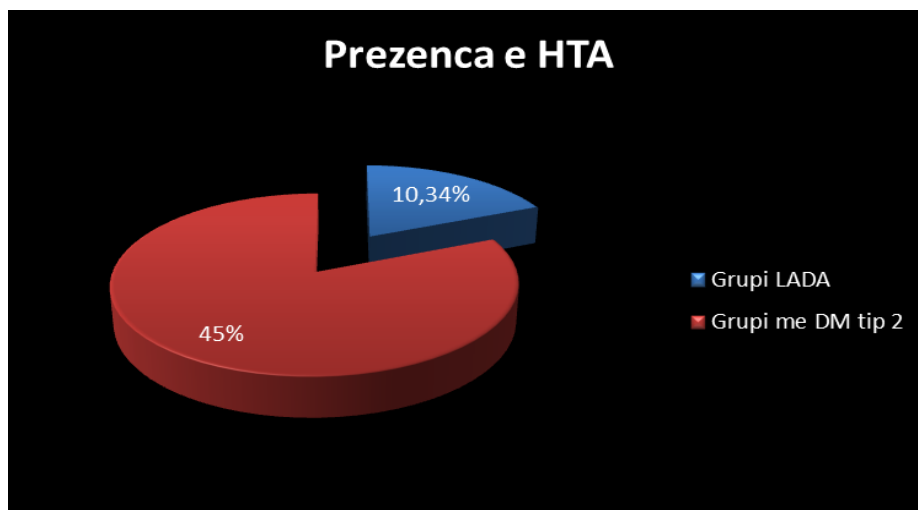| Groups	Age
LADA group	
Males (20)	41.11 ± 1.9
Females (9)	44.16 ± 1.79
tip 2 DM group	
Males(99)	$43,82 \pm 4.29*$
Females(50)	44.78 ± 1.0

Table 1.**Distribution of Study Persons by Age**
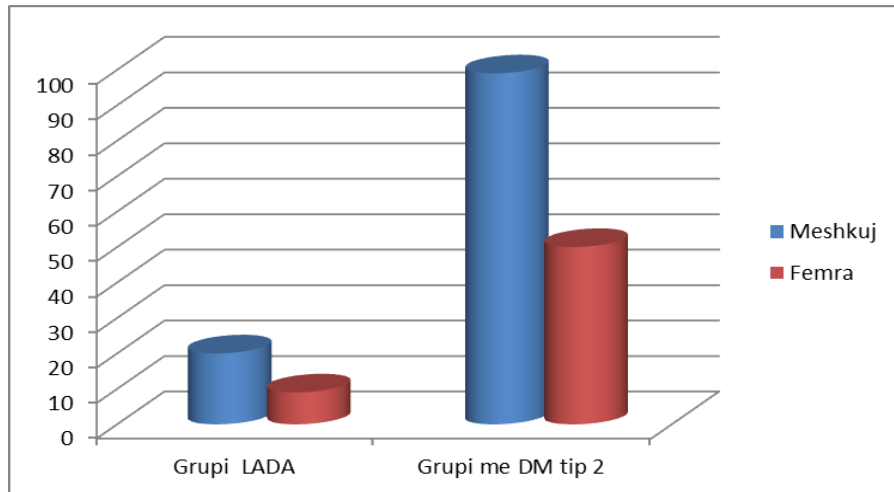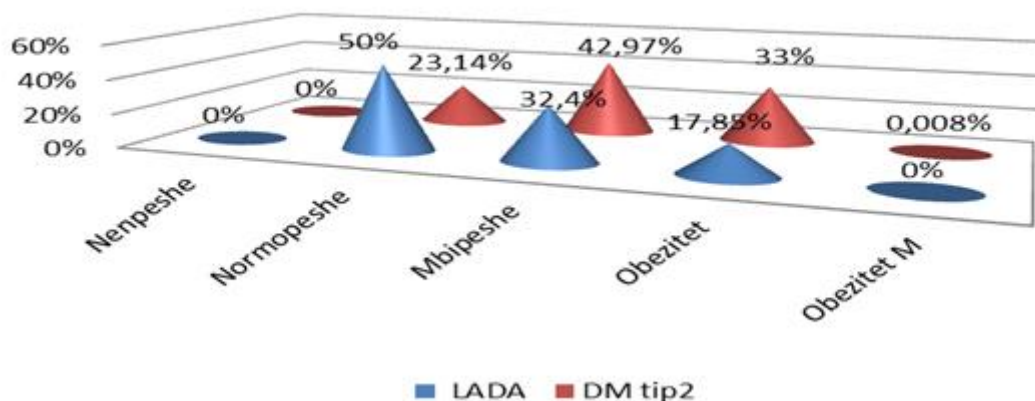
Graph No1 :Distribution of Persons in Study by Gender

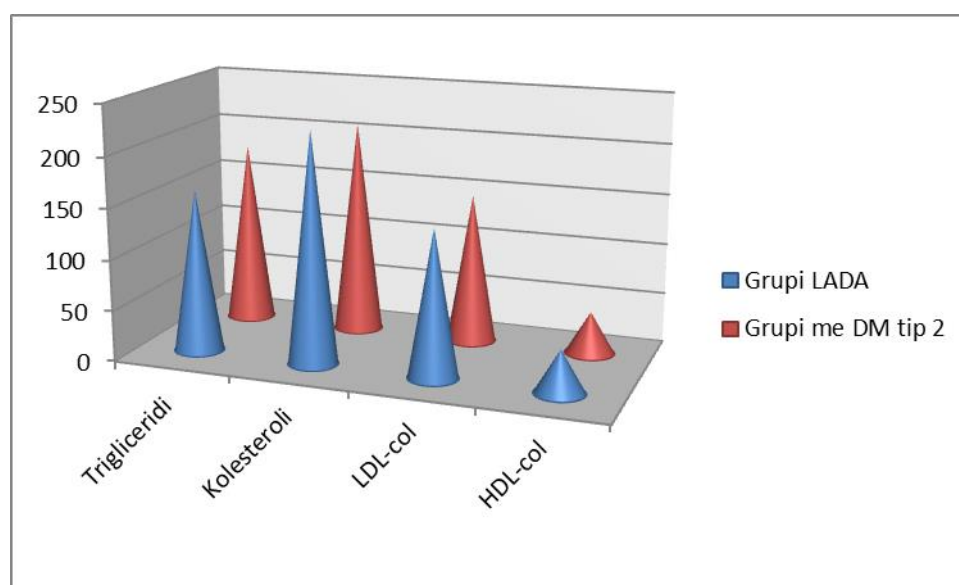**Graph No. 2 Distribution of persons by glucose level in both groups**

Graph No. 3 Distribution of Arterial Hipertention to study groups (in%)

Graph No. 4 Distribution by BMI of the personssurveyed

Graph No. 5 Distribution of Lipid Levels in both groups

IV. DISCUSSIONS

The average age between the two groups did not represent statistical significance, 43.16 ± 3.2 for the LADA population, versus 43.69 ± 5.3 for the population with type 2 Diabetes Mellitus.Variousstudies show that, the prevalence of diabetes, of its types, isdifferent by gender at differentages.Thus , type 1 diabetesmellitus is found with frequency in the age group of 12-24 years with preval encecommonly reported for both males and females.Similar data have also been found for Type 2 diabetes, whichismostcommon in males and females over 45 years of age.Interestingly, there are findingsrelated to LADA. This type isfound in men in the age group 36-46, whileitappears to affect more womenthan 45 years of age. Thesefindings assume that LADA affects womenolderthan men.This assumptionfinds expression in ourstudywhere the averageage of womenwith LADA (44.16 ± 1.79) ishigherthan that of LADA men (41.11 ± 1.9).

In an effort to link the BMI values to the type of diabetes, it has been notedthat a large number of people with type 1 diabetes in differentstudies are healthy or underweightthatsuggests the metabolism of carbohydrates, proteins And lipids due to the absoluteinsulindeficiency

The BMI of the subjectsstudiedfluctuatedbetween 21-42 kg / m2 -33.8 kg / m2 for the population with type 2 DiabetesMellitus (with an average value of 29.02 kg / m2) and 21-35 kg / m2 for the population with LADA (with an average value 25. 07 kg / m2). BMI values in patients withtype 2 DiabetesMellitusshowedthat the majority of patients in this group wereoverweight (42.97%). An important part of this group wasfound to be obese (33%) and very obese, obesity BMI>35, (0.008%).

In our study we found these findings HDL-cholesterol was lower in the two groups, in the type 2 Diabetes Mellitus group (41.69mg / dl) versus 42.20mg / dl in the LADA population.LDL-cholesterol was found to be high in predominance in the type 2 diabetes mellitus group.

Cholesterol was higher in the population with LADA (227.01mg / dl) ,versus (211.4mg / dl) of the population with type2 Diabetes Mellitus . Finding high levels of cholesterol in our patients with LADA than those with type 2 DM in the study also supports the findings found in some studies in the world why LADA patients are at higher risk for cardiovascular complications That patients with type 2 Diabetes Mellitus.

Konkluzione :As a conclusion to this study was found that in the group of people with LADA, were present a significant number of CVD risk factors including modifiable and non-modifiable risk factors

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