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METABOLIC SYNDROME IN PATIENTS WITH T1DM OLDER THAN 10 YEARS

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Abstract

Metabolic Syndrome (MS) is a clinical entity recently individualized, a clinical concept with multiple definitions that expresses a complex disorder of the body's energy metabolism, with insulin resistance and compensatory hyperinsulinism associated with the presence of risk factors involved in the etiology and/or pathophysiology of atherosclerosis. There are many definitions of metabolic syndrome, the most recent is the definition of consensus arising from the views of those most important international scientific organizations. These are concepts that recognize the association of clinical risk factors for cardiovascular and metabolic diseases. Metabolic syndrome is an aggregation of interrelated metabolic abnormalities that occur with a higher prevalence in people with insulinresistance or with compensatory hyperinsulinism and even if it identify subjects at risk for developing type 2 diabetes mellitus and cardiovascular disease, it occurs quite frequently in type 1 diabetes. In 1998, Reaven was the first person who interpreted the association between diabetes, obesity, dyslipidemia and hypertension by peripheral insulin resistance pathogenic relationship. Metabolic syndrome has become a public health problem, a phenomenon explained mainly by the global epidemic of obesity. It is therefore a severe impact individual and epidemic initially thought to only deals with adults, but the reality of recent years indicates penetration of the epidemic in children and adolescents, which would explain the high frequency of type 2 diabetes at small ages, and the presence of metabolic syndrome in type 1 diabetes too. Because the association with increased risk of cardiovascular disease, metabolic syndrome is an extremely important public health mainly because of the alarming prevalence increasing lately. Metabolic syndrome is a clinically useful building of preventive medicine, with reference to metabolic diseases, cardiovascular, oncology, hepatology.

keywords: *metabolic syndrome, cardiovascular and metabolic diseases, type 1 diabetes.*

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Background: the analysis of the metabolic syndrome (MS) in patients with the duration of T1DM more than 10 years and its relationship with diabetic chronic complications.

Material and method: we studied a group of 220 patients with unselected T1DM, hospitalized in the Diabetic Clinic Center from Craiova. We analyzed the following dates: the age of patient at DM onset, the patients actual age, DM oldness, abdominal circumference (AC), blood pressure, glycaemia, triglycerides, total cholesterol and its fractions, urea, creatinine, albuminuria. For the MS's diagnostic we used the statement of IDF, NHLBI, AHA, World Heart Federation; International Atherosclerosis Society and International Association for the Study of Obesity editorialized in 2009: AC >94cm (men), >80cm (women), triglycerides ≥150mg/dl, HDL <40mg/dl (M), <50mg/dl (W), blood presure ≥130/85mmHg, fasting glycaemia ≥100mg% or antidiabetic treatment for hiperglycaemia. For data processing we used EPI 2000 software packages, SPSS 16 and Data Analysis module of Microsoft Excel with XLSTAT for MS Excel suite.

Results and discussions: from the 220 patients included in the study, 85 patients (38,63%) were women and 135 (61,36%) were men (figure 1).

The oldness of DM was between 10-20 years in 106 patients (48.18%), 21-30 years in 72 (32.72%), 31-40 years in 24 (10.9%) and over 40 years in 18 patients (8.18%) (figure 2).

MS was relieved in 55 (25%) patients of our studied group (figure 3) wherefrom 31 (22.96%) were men and 19 (22.35%) women (figure 4). All patients with DM presented AC outside permissible limit and at least two other elements of MS.

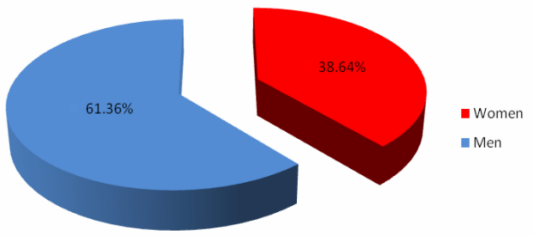


Figure 1. Sex distribution of the patients in the study.

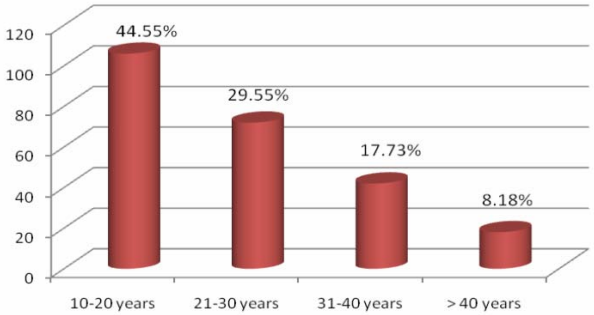


Figure 2. Duration of T1DM in the studied patients

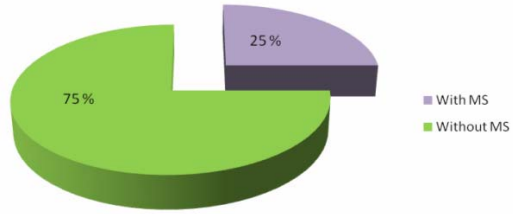


Figure 3. Metabolic syndrome incidence in the Studied Patients

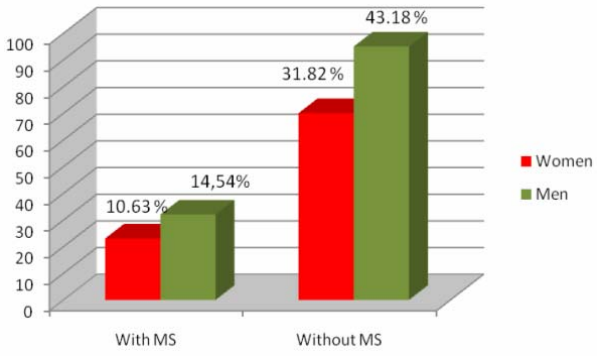


Figure 4. The distribution by gender of patients with metabolic syndrome

Comparing chronic micro and macrovascular complications in patients with

and without MS we obtained the results (figure 5, table 1).

In MS patients, diabetic nephropathy was found in 37 (69.81%) patients and it was associated with hypertension in 60.38% (figure 6).

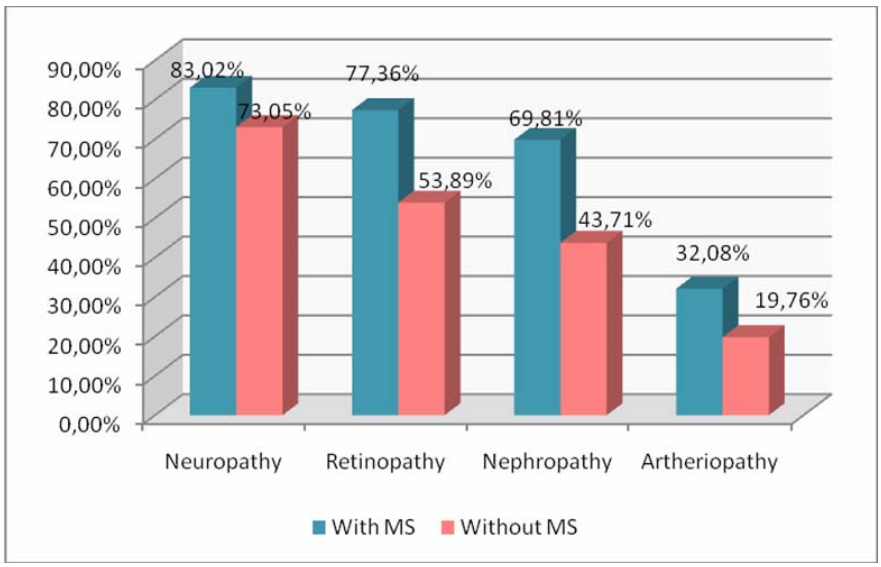


Figure 5. Chronic micro and macrovascular complications in patients with and without MS.

Table 1. Chronic micro and macrovascular complications in patients with and without MS

CHRONIC COMPLICATIONS	With MS	Without MS	p
Nephropathy	69.81%	43.71%	0.00093 - HS
Neuropathy	83.02%	73.05%	0.14191 - NS
Retinopathy	77.36%	53.89%	0.00242 - S
Artheriopathy	33.96%	19.76%	0.03279 - S

NS – unsignificant value, S - significant value, HS – high significant value

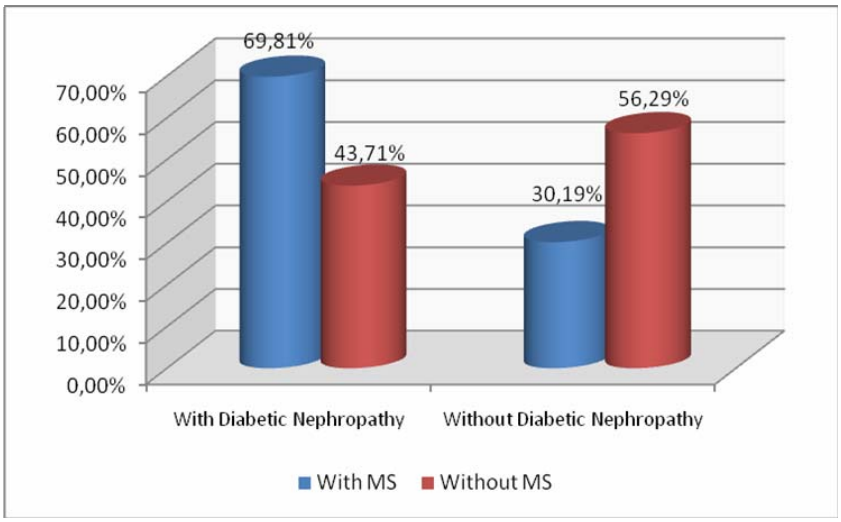
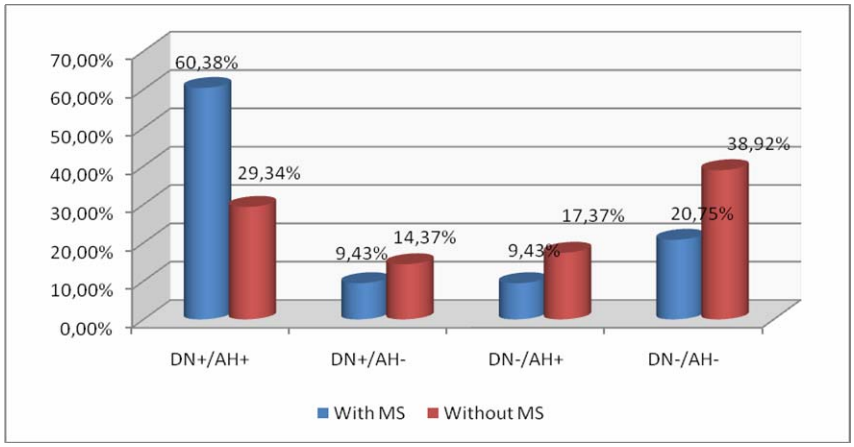


Figure 6. Diabetic Nephropathy in the Studied Patients.



DN- diabetic nephropathy, AH – artherial hypertension

Figure 7. The association of diabetic nephropathy and artherial hypertension in patients with/without metabolic syndrome.

Diabetic nephropathy occurred in 73 (43.71%) patients without MS, of whom 49 (29.34%) had also associated hypertension (figure 7). There is a relationship between MS and the existence of chronic diabetic complications, but only nephropathy according to MS is high statistically significant.

Conclusions: in the present, even if MS suppose T2DM, it is said about its presence in T1DM too. After 10 years of T1DM evolution it is observed an increased AC and lipid metabolism abnormalities. Artherial hypertension, frequently met after a long period of evolution, may be considered as part of MS, but in the same time we have to take account about the presence of diabetic nephropathy, considering a potential secondary cause of artherial hypertension. In spite that, MS percent would remain unchanged due to the fact that the patients with artherial hypertension had other 3 elements of MS.

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