GLUCOSE HOMEOSTASIS ALTERATIONS IN CUSHING`S DISEASE: EPIDEMIOLOGY, ANTHROPOMETRIC ASSESSMENT AND THE ROLE OF FAMILY HISTORY OF TYPE 2 DIABETES.

Przemysław Witek[1], Joanna Witek[2,3], Grzegorz Zieliński[3], Marlena Błazik[2], Grzegorz Kamiński[1]

[1] Department of Endocrinology and Isotope Therapy, Military Institute of Medicine, Warsaw, POLAND

[2] Outpatient Clinic, Institute of the Mother and Child, Warsaw, POLAND [3] Department of Neurosurgery, Military Institute of Medicine, Warsaw, POLAND

INTRODUCTION:

Cushing's disease(CD) leads to glucose homeostasis alterations, obesity, unfavorable changes in body composition and cardiovascular complications.

AIM OF THE STUDY:

1. Prospective evaluation of the frequency of pre-diabetes and diabetes. 2. Assessment of insulin resistance (IR) indices in CD. 3. Analysis of the influence of family history of type 2 diabetes (T2D) on the anthropometry in CD.

METHODS:

The study group included 47 patients with CD (37 women and 10 men aged 43.1±14.6). Waist and hip circumferences, body mass index(BMI) and body fat content were recorded. Glucose and insulin levels during an oral glucose tolerance test(OGTT) were assessed. HOMA-IR, QUICKI and Matsuda indices were calculated. Patients previously diagnosed with diabetes were examined exclusively for fasting glucose and HbA1c.

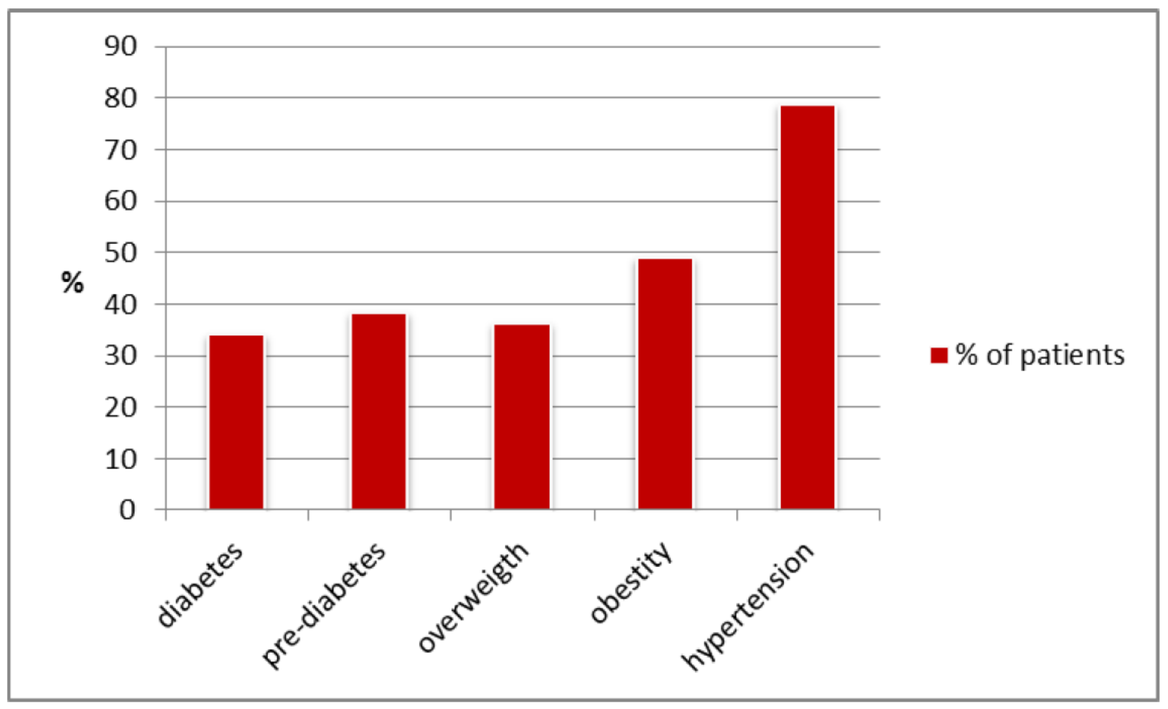
RESULTS:

Sixteen patients (34%) had diabetes, another 18 (38.3%) had pre-diabetes. Hypertension was confirmed in 37 patients (78.7%). Mean total fat content was 34.52±10.64kg; trunk fat was 17.49±5.18kg. Mean BMI was 30.9±6.6kg/m². Obesity was confirmed in 23 patients (48,9%) and overweight in 17(36.2%). In patients with hypertension trunk fat was higher than in the normotensive group (18.38±4.87kg vs.14.25±5.2kg, $p<0.05$). Positive family history of T2D was found in 15 patients (32%). It was associated with a greater hip circumference (114.37±17.84cm vs.102.81±9.6cm, $p<0.05$) compared to those without T2D in the family history. Matsuda and QUICKI indices were higher in patients without concomitant glucose homeostasis alterations than in patients with pre-diabetes (4.01±2.04 vs 2.08±0.92, p=0.001 and 0.338±0.034 vs. 0.311±0.024, p=0.01, respectively). There was no significant difference with regards to HOMA-IR (2.78±1.44 vs.5.33±4.82, p=0.08).

Table 1. IR-indices in patients with pre-diabetes and normal glucose tolerance

	MATSUDA	QUICKI	HOMA-IR
Pre-diabetes	2.08±0.92	0.311±0.024	5.33±4.82
Normal glucose tolerance	4.01±2.04	0.338±0.034	2.78±1.44
p	**0.001**	**0.01**	0.08

Figure 1. Frequency of metabolic complications in Cushing`s disease.



CONCLUSIONS

1.Glucose homeostasis alterations were observed in 70% of patients with CD. 2.We confirmed the association between the presence of arterial hypertension and trunk fat content. 3.The family history of T2D may be associated with a higher risk of obesity in CD. 4.Matsuda index contrary to HOMA-IR may be a more sensitive marker of IR in CD.

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Przemyslaw Witek

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