The prevalence of obesity and metabolic syndrome in adult patients with long-standing hypopituitarism who receive adequate supplemental therapy

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INTRODUCTION: Hypopituitarism is characterized by the absence of pituitary hormones. Depending on what pituitary hormones are missing and what is the etiology of hypopituitarism, its clinical manifestation varies. Apart from evident symptoms and signs of hypopituitarism due to hormonal insufficiencies, several studies reveal that long-standing hypopituitarism, including particularly absence of growth hormone (GH), is related to higher risk of obesity and metabolic syndrome.

PURPOSE: The aim of the study was to asses the prevalence of obesity and metabolic syndrome (MS) in patients with long-standing pituitary hormones deficiency who receive (or did receive) adequate supplemental therapy, including GH treatment.

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MATERIAL AND METHODS: 12 patients (5 males, 7 females), aged 18-40 years, with hypopituitarism who did receive GH supplemental therapy under the care of Chair and Department of Endocrinology Medical University of Lublin (Poland) from 01.01.2011 to 31.12.2015 were enrolled into the study. 9 patients had panhypopituitarism, 2 patients had isolated GH deficiency, 1 patient had deficiency of GH and gonadotropins. The recognition of obesity was based on body mass index value (BMI) and the recognition of MS was based on the criteria of IDF/NHLBI/AHA-2009.

RESULTS: 5 patients (41,7%) were obese, 4 of them met criteria of metabolic syndrome. All these patients had panhypopituitarism with diabetes insipidus diagnosed in 4 of them. The 4 patients with diabetes insipidus had the most severe obesity. None of the patients with isolated GH deficiency or with GH and gonadotropins deficiency was obese or met MS criteria (Table 1).

Table 1. Main characteristics of the examined patients (patients obese or with MS are presented in yellow print)

Patient Number	Sex (F-female M-man)	Age (years at the moment of the study)	Hormonal deficiencies prior to the supplemental therapy: „+" hormone deficiency present; „-"hormone deficiency absent"					Ethiology of hormonal deficiency	Hormonal replacement therapy length (years)	Obesity	Metabolic Syndrome („+" metabolic syndrme criteria fullfilled) „-" metabolic syndrome criteria not accomplished
			GH	ACTH	FSH LH	TSH	Diabetes insipidus				
1	F	31	+	+	-	-	-	pituitary hypoplasia	15,0	-	-
2	F	18	+	-	-	-	-	pituitary cyst	1,5	-	-
3	F	18	+	-	-	-	-	unknown	1,0	-	-
4	F	21	+	+	+	+	+	craniopharyngioma	15,0 (not regularly)	-	-
5	F	38	+	+	+	+	-	craniopharyngioma	8,0	-	-
6	F	26	+	+	+	+	-	unknown	7,0	-	-
7	F	25	+	+	+	+	+	craniopharyngioma	3,0	+	+
8	M	40	+	+	+	+	-	pituitary hypoplasia	>10,0 (irregularly)	+	+
9	M	32	+	+	+	+	+	craniopharyngioma	5,0	+	+
10	M	21	+	+	+	+	+	craniopharyngioma	8,0 (irregularly)	+	+
11	M	24	+	+	+	+	-	post radiation and chemotherapy (germinoma)	7,5 (irregularly)	-	-
12	M	22	+	+	+	+	+	craniopharyngioma	18,0	+	+

CONCLUSION: Despite adequate supplemental therapy, panhypopituitarism is a risk factor of obesity and MS suggesting the role of other factors (hypothalamic leisure?) in the development of the above metabolic complications.

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