

High prevalence of acromegaly among patients referred for sleep apnea syndrome

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Introduction and Objectives

Acromegaly is a rare disease, characterized by excess secretion of growth hormone (GH) and insulin-like growth factor-1 (IGF-1) levels by a pituitary adenoma. The prevalence, about 0.01% to 0.04% of the general population, and the diagnosis are frequently belated.

Sleep apnoea syndrome (SAS) is over-represented in acromegaly patients, with a prevalence ranging from 45% to 80%. Obstructive sleep apnoea (OSA) is the prevailing form of SAS associated with acromegaly, with swelling of the uvula, macroglossia and maxillofacial modifications -- typical signs of acromegaly, and often present.

The OSA population might constitute a target group for the earlier detection of acromegaly and therefore prevention of late complications of the disease.

The aim of our study was to prospectively assess the prevalence of undiagnosed acromegaly in patients newly referred for suspicion of SAS.

Methods

From November 2013 to October 2014, we recruited patients referred for clinical suspicion of OSA to Grenoble Alpes University Hospital or to one of 10 private sleep centres.

During the baseline visit for suspected OSA, the Sleep Registry of the French Federation of Pneumology (OSFP, www.osfp.fr) was completed. We collected the clinical symptoms of acromegaly, cardiovascular co-morbidities and sleep study results. Initial blood analyses were performed, including lipid profile, fasting blood glucose and specifically the study IGF-1 levels.

When the level of IGF-1 was elevated for age and sex, a new blood sample was requested and analyzed for IGF-1 level together with GH monitoring during an oral glucose tolerance test. If abnormal, patients were referred to an expert endocrinologist for confirmation of the diagnosis and exploration/search for pituitary adenoma.

Results

The prevalence of acromegaly in our entire cohort was 0.25%. Moderate to severe OSA was diagnosed in 567 patients; in this group, the prevalence of acromegaly was 0.35%, 90% confidence interval (CI) = 0.08% - 1.19%, which is about 8- to 30-fold the prevalence in the general population, depending on the study.

Figure 1. Flow chart

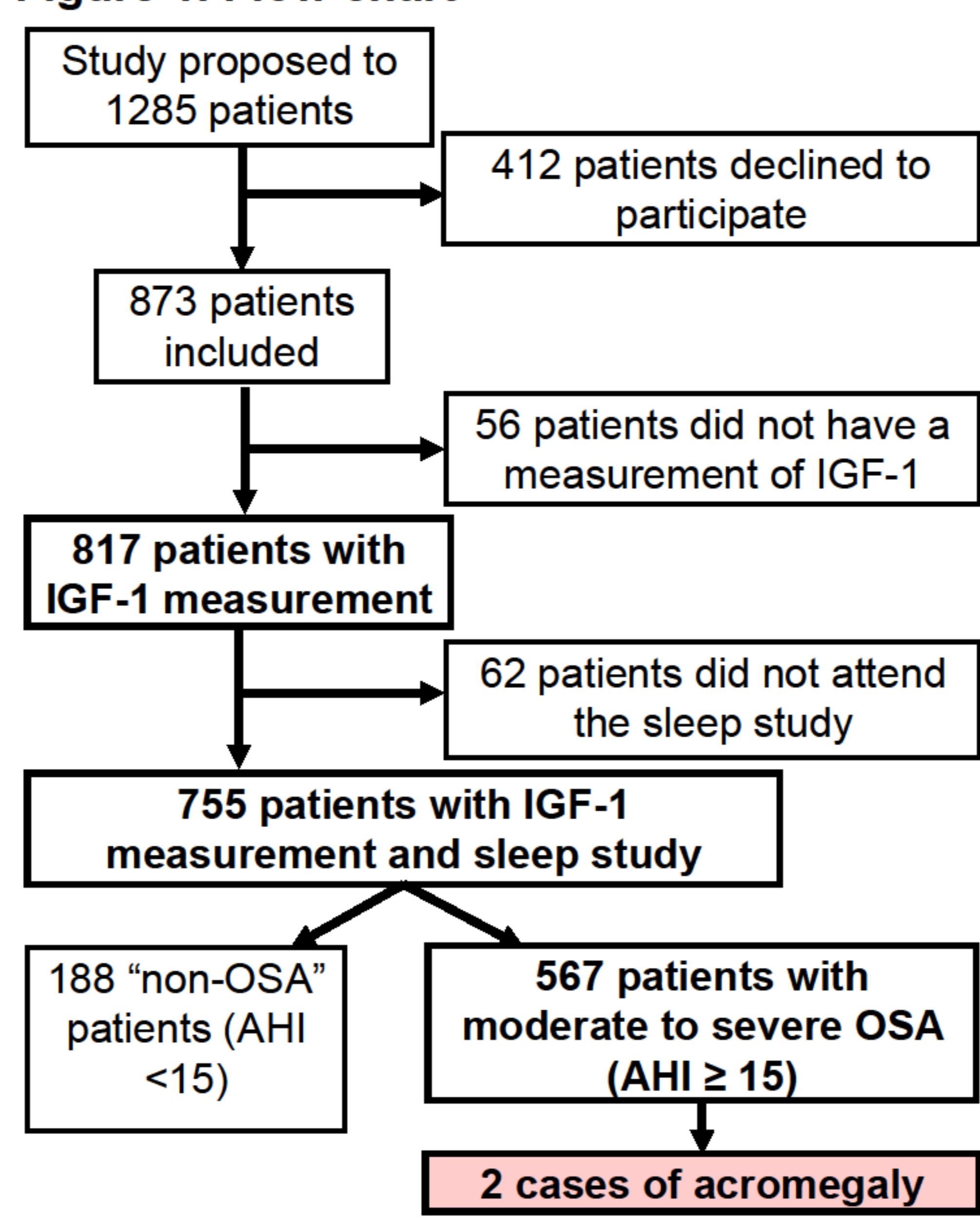
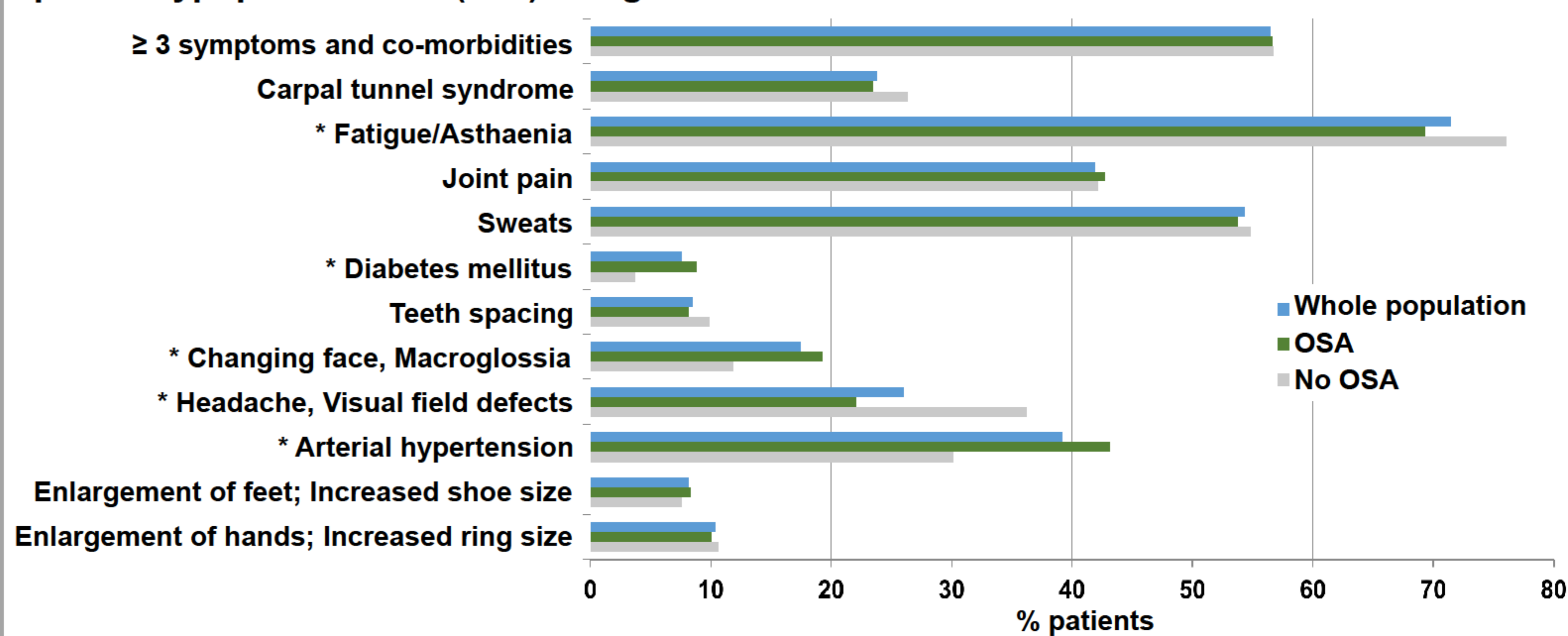


Table. Characteristics of the population with IGF-1 assay

Parameters	n=817
Demographic data	
Age, years	53 (44; 61)
Gender, % male	63.9
BMI, kg/m ²	29.8 (26.1; 34.5)
Sleep apnoea	
AHI, events/h (n=755)	25.3 (15; 41)
Epworth Sleepiness score, /24	9 (5; 13)
Blood samples	
IGF-1, ng/ml	138 (109; 176)
Fasting blood glucose, g/l	1 (0.9; 1.1)
Total cholesterol, g/l	2 (1.8; 2.3)
LDL cholesterol, g/l	1.2 (1; 1.5)
HDL cholesterol, g/l	0.5 (0.4; 0.6)
Triglycerides, g/l	1.2 (0.9; 1/7)
Co-morbidities	
Former smokers, %	31.5
Active smokers, %	18.8
Hypertension, %	39.2
Diabetes, %	
	No 92.4
	Type 1 2.9
	Type 2 4.7
Hypercholesterolaemia, %	21.4
Hypertriglyceridaemia, %	3.8
Coronary heart disease, %	2.6
Arrhythmias, %	4.8
Stroke, %	2.9
Heart failure, %	2
Gastroesophageal reflux, %	18.3
Depression, %	11
Peripheral arteriopathy, %	1.7
Glaucoma, %	2.2
Thyroid disease, %	6

Figure 2. Symptoms and signs of acromegaly in the whole population and according to apnoea-hypopnoea index (AHI) categories



Conclusions

We have shown that there is a higher prevalence of acromegaly among patients referred for suspicion of OSA than in the general population. Further studies are needed to evaluate the cost effectiveness of systematically screening for acromegaly in patients presenting with OSA.

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