

# PREVALENCE OF THE SLEEP BREATHING DISORDERS IN UNTREATED AND TREATED PATIENTS WITH ACROMEGALY

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## OBJECTIVES

Acromegaly is a severe neuroendocrine disease with many comorbidities and increased mortality. Factors contributing to increased mortality in acromegalic patients include arterial hypertension, hyperglycemia or overt diabetes, cardiomyopathy, and sleep apnea syndrome [1]. Respiratory disorders account for up to 25% of causes of death [2]. The sleep breathing disorders (SBD) are the most common respiratory disturbances in acromegaly and can be found in most of the patients with active disease [3].

**Aim of the study** was to estimate the prevalence of SBD in untreated and treated patients with acromegaly from Moscow region.

## METHODS

We examined 55 patients with acromegaly (18 men and 37 women):

27 patients with newly diagnosed acromegaly and 28 patients with partial or full control of acromegaly.

Both groups did not significantly differ by BMI, age and gender distribution (Tab.1). GH and IGF-1 levels were higher in active patients.

For better analysis IGF-1 levels were expressed as % of upper normal limit (UNL):  $[\text{patients IGF-1}] \times 100 / [\text{UNL IGF-1}] - 100$ .

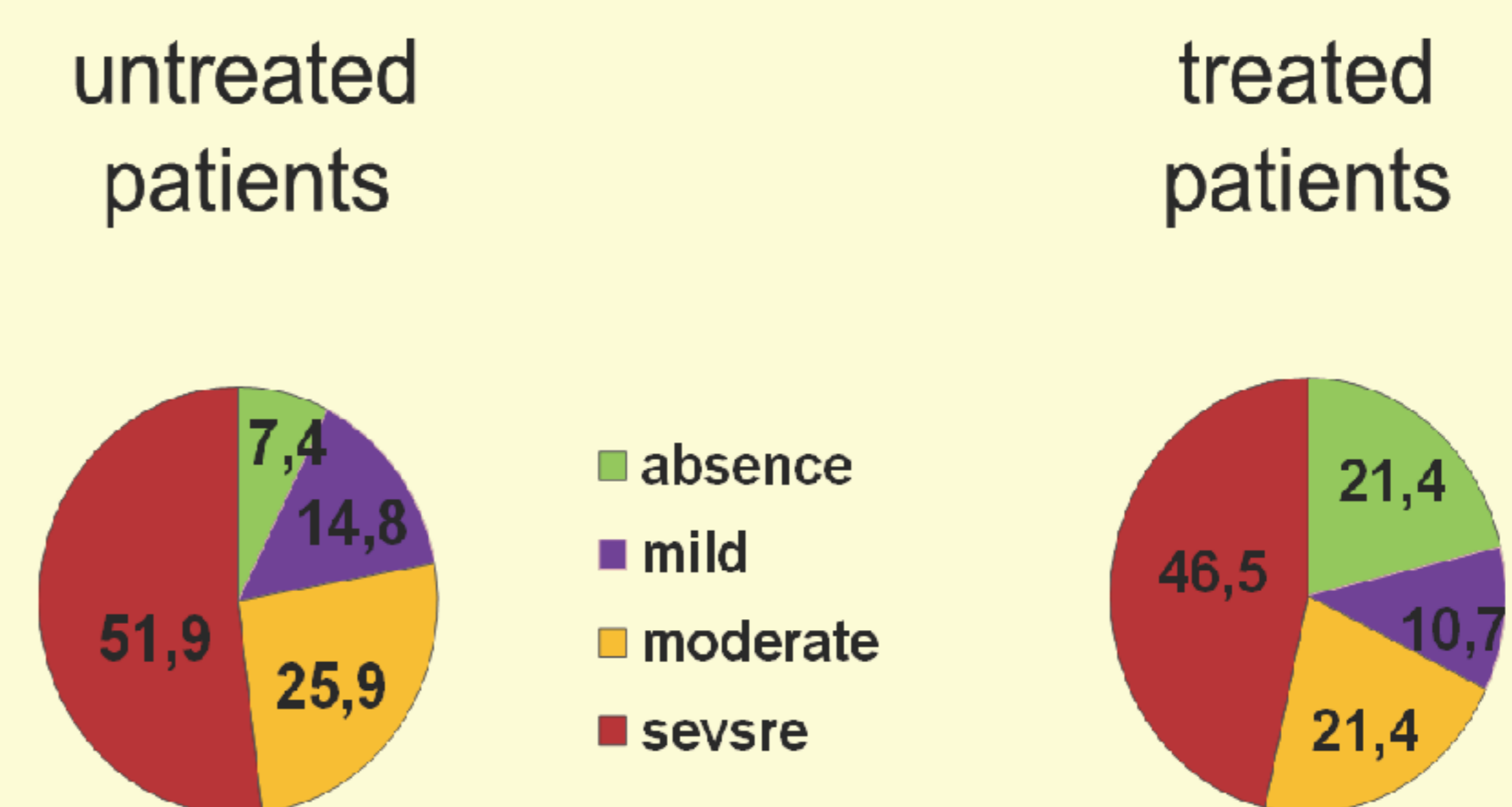
Respiratory monitoring was conducted using device ApneaLink, ResMedInc, Australia.

Statistical analysis: SPSSv.22 for nonparametric data, results are expressed as Median [25%; 75%].

Tab.1 The main clinical characteristics of patients

| Indicators             | untreated group       | treated group        |
|------------------------|-----------------------|----------------------|
| Age (years)            | 56.0 [47.0; 64.0]     | 57.0 [47.3; 64.8]    |
| Gender, M / F (%)      | 33.3 / 66.7           | 32.1 / 67.9          |
| BMI, kg/m <sup>2</sup> | 30.2 [27.8; 34.4]     | 30.7 [27.9; 35.0]    |
| GH levels, ng/ml       | 12.8 [4.6; 23.0]      | 2.1 [1.2; 3.4]       |
| IGF-1 levels, ng/ml    | 907.0 [423.0; 1140.0] | 317.0 [194.3; 627.0] |
| IGF-1 % of UNL         | 245.0 [106.0; 331.0]  | 16.8 [-15.1; 173.8]  |
| Hypertension duration  | 6.5 [1.0-14.8]        | 9.0 [3.0; 10.0]      |

Fig.1 The prevalence and severity of the sleep breathing disorders



## RESULTS

SBD was found in most of the untreated or treated patients (Fig. 1). Distribution of SBD severity and Index of apnoe-hypopnoe (IAH) were similar in *de novo* and treated patients: severe SBD - IAH 46.6 [40.8; 57.8] and 47.0 [43.9; 59.0], respectively; moderate SBD – IAH 21.3 [20.0; 23.0] and 23.2 [18.0; 26.3]), mild – IAH 10.5 [8.3; 12.1] and 5.0 [5.0; 11.0] accordingly. Severity of SBD did not correlated with GH/IGF-1 levels.

The frequency of severe+moderate SBD in patients with active acromegaly were higher compared with treated acromegaly (77.8% and 67.9% respectively), however the difference was not statistically significant ( $p=0.15$ ). When treated patients were divided into two subgroups depending on the control of acromegaly (16 patients with partial control and 12 patients with full control of acromegaly) the prevalence of severe+moderate SBD was 75% and 55.3% correspondingly ( $p=0.004$ )

Moderate correlations were found between IAH and age, IAH and duration of hypertension.

The saturation level (normally 94-98%) was decreased in 54.2% untreated and 42.3% treated patients; the average saturation level was 93.0 [90.0; 94.0]% and 94.0 [91.8; 95.3]%, correspondingly. Desaturation level (normally 90-98%) was below normal in 91.7% untreated and 83.3% treated patients; the average desaturation was 79.5 [70.3; 86.8] % and 84 [72.3; 88.8] %, respectively (differences were not statistically significant).

## CONCLUSIONS

Sleep breathing disorders (with high prevalence of severe IAH and significant desaturation) could be found in most of the patients with untreated and treated acromegaly, and regression of SBD after acromegaly treatment is not so significant. The severe degree of SBD was prevalent in both active and controlled patients.

The severity SBD did not correlate with GH and IGF-1 levels however achievement of the biochemical control of acromegaly is essential for the reduction of the SBD severity.

Specific additional methods of apnoe treatment should be considered for patients with acromegaly and SBD.

## References

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