Sleep apnea and supraventricular arrhythmias

Baymukanov A. M., Weissman Y. D., Bulavina I. A., Yunyaeva M. V., Ilyich I. L., Termosesov S. A.

Moscow City Clinical Hospital After V.M. Buyanov, Moscow, Russian Federation

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BACKGROUND

Among supraventricular arrhythmias, the most commonly encountered are: atrial fibrillation and atrial flutter, supraventricular extrasystole, paroxysmal AV nodal tachycardia.

Atrial fibrillation and atrial flutter are the most common among the aforementioned tachyarrhythmias.

Atrial fibrillation:

- The number of patients worldwide exceeds 46.3 million.
- In Russia, the prevalence is 2536 cases per 100,000 population.
- The risk of AF, previously estimated at 1 in 4, has now been revised to 1 case for every third individual of European descent aged >55 years.

Atrial flutter:

- Prevalence ranges from 0.4% to 0.7% in the general population.
- This form of arrhythmia is diagnosed in men 2–5 times more frequently.

Over the past 20-30 years, we have "almost" learned to treat atrial fibrillation/flutter. We have gained insight into medical antiarrhythmic therapy, and radiofrequency and cryoballoon ablations are increasingly performed. Technologies are becoming more accessible and, most importantly, effective. At the same time, there's a sense of a certain impasse in AF treatment. This sentiment has been increasingly observed in publications and various presentations over the last few years. Many of them believe that it's time to evaluate each patient with a rhythm disorder on an individual basis.

We all advise patients to monitor their blood pressure, blood glucose levels, various lipid fractions, lose weight, and so on. However, how often do we consider and screen patients for the presence of obstructive sleep apnea syndrome? It's important to recognize that obstructive sleep apnea (OSA) is a common disorder that can have significant implications for cardiovascular health. OSA is associated with an increased risk of hypertension, diabetes, and cardiovascular events. As healthcare providers, we should routinely inquire about sleep quality and symptoms of sleep disturbances during patient evaluations.

PURPOSE

To investigate the prevalence of obstructive sleep apnea, anthropometric and clinical characteristics of patients with atrial fibrillation and atrial flutter, and assess the possibilities of screening diagnosis for OSA.

METHODS

Laboratory and instrumental examinations have been conducted, including respiratory sleep monitoring. Questionnaires such as STOP-BANG, Berlin, and the Epworth Sleepiness Scale were administered. These steps indicate a thorough assessment of the patient's sleep health. The STOP-BANG questionnaire assesses the risk of obstructive sleep apnea based on snoring, tiredness, observed apnea, high blood pressure, body mass index, age, neck circumference, and gender.

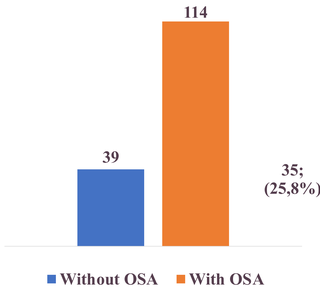
METHODS

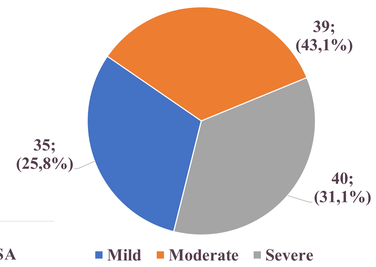
The Berlin questionnaire focuses on snoring, daytime sleepiness, and high blood pressure as potential indicators of sleep-disordered breathing. The Epworth Sleepiness Scale measures the likelihood of dozing off in various situations to assess daytime sleepiness. By incorporating these questionnaires and sleep monitoring into the evaluation process, a comprehensive picture of the patient's sleep patterns and potential sleep disorders can be obtained. This information is crucial for making informed decisions about management and treatment options, especially when addressing conditions like obstructive sleep apnea.

Number of patients	**153**
Male, n (%)	94 (61,5%)
Median age (years)	64
Atrial fibrillation, n (%)	137 (89,5%)
Atrial flutter, n (%)	16 (10,5%)

RESULTS

Among patients with atrial fibrillation and atrial flutter, obstructive sleep apnea was diagnosed in more than 74.5% of the patients. Severity categorization has also been performed.





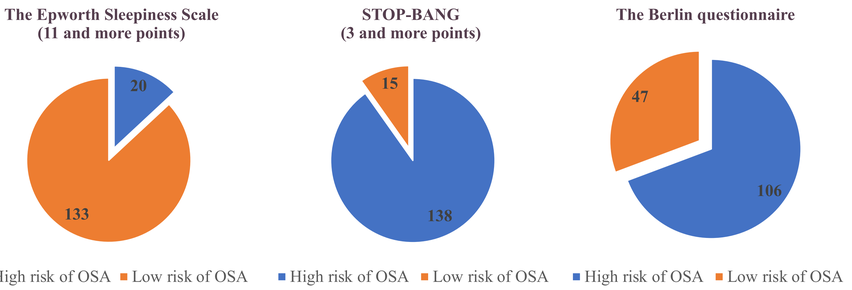
Comparison of patients with and without sleep apnea based on anthropometric and laboratory parameters revealed statistically significant differences in terms of BMI and neck circumference.

Statistically significant differences were obtained when comparing the frequency of heart failure and diabetes based on the presence of obstructive sleep apnea. The odds of developing heart failure increased by 2.3 times in patients with obstructive sleep apnea (p = 0.033, OR 2.3; CI 1.05-5.13). The odds of developing diabetes increased by 2.7 times in patients with obstructive sleep apnea (p = 0.024, OR 2.7; CI 1.13-6.76).

RESULTS

	With sleep apnea	**Without sleep apnea**	**p-value**
Age, years	55,5 (45,5-66)	62,5 (55-72)	0,073
Height, sm	177,5 (169,75-183,5)	173 (169,25-178,5)	0,548
Weight, kg	101,5 (87,5-119,5)	100,5 (89,7-119,2)	0,141
BSA, kg/m2	34,1 (29,6-36,6)	34,4 (30,3-39,2)	0,022
Waist circumference, sm	113 (110,25-126,75)	118 (107-124,7)	0,09
Neck girth, sm	42 (39,5-46)	43 (41,75-47,25)	0,006
Hb, g/L	145,5 (138,75-155,5)	147,5 (139,7-159,2)	0,751
HbA1c, %	6 (5,45-6,47)	6,35 (5,8-6,8)	0,261
eGFR, ml/min/1.73 m2	93 (84,2-111)	110 (93-119,5)	0,085
LDL, mmol/L	2,54 (1,89-3,27)	2,54 (1,74-3,32)	0,418

The results of the survey were opposite:



The odds of having sleep apnea in patients with a score of 3 or more on the STOP BANG scale increased by 11 times (95% CI: 3.3-38.2). There was a moderate association between the compared variables (V = 0.37). The odds of having sleep apnea in patients at high risk according to the Berlin Questionnaire increased by almost 5 times (95% CI: 2.26-10.8). There was a moderate association between the compared variables (V = 0.33).

RESULTS

More than 70% of patients with atrial fibrillation and atrial flutter were found to have predominantly moderate and severe levels of sleep apnea. These patients differed in terms of body mass index and neck girth. Among patients with OSA and cardiac rhythm disorders, congestive heart failure and diabetes were more frequently diagnosed, highlighting their significant role in shaping comorbidity in these patients. The Epworth Sleepiness Scale is not a screening tool for diagnosing obstructive sleep apnea in this patient group. The Berlin Questionnaire and STOP-BANG questionnaire can be used to assess the risk of OSA in patients with atrial fibrillation and atrial flutter.