OSACS score - a new simple tool for identifying high risk for obstructive sleep apnea syndrome based on clinical parameters

To the Editor,

Herein we comment on the article by Szymanski et al. (1) entitled "OSACS score-a new simple tool for identifying high risk for Obstructive Sleep Apnea Syndrome based on clinical parameters." published in Anatol J Cardiol 2015; 15: 50-5. They proposed a scoring system based on clinical and echocardiographic data to screen the risk of obstructive sleep apnea (OSA) immediately after an acute coronary syndrome (ACS) episode. The authors identified independent risk factors using clinical and echocardiographic parameters in a logistic regression model. Additionally, all risk factors were used to create a final model to predict OSA risk among ACS patients.

OSA diagnosis and treatment are important procedures for the secondary prevention of cardiovascular diseases. OSA independently increases the risk of ACS, and majority of ACS patients develop OSA as a comorbidity (2). Glantz et al. (3) evaluated 662 patients undergoing percutaneous coronary revascularization. They found that OSA, defined as an apnea–hypopnea index equal to or greater than 15/h (moderate to severe cases), was found in 422 (63.7%) patients. This prevalence was higher than hypertension (55.9%), obesity (body mass index≥30 kg/m^2; 25.2%), diabetes (22.1%), and current smoking (18.9%) (3).

However, OSA gold standard diagnosis by polysomnography is rarely available in hospital settings and cost ineffective by means of general screening tool, which brings relevance for diverse proposals to stratify the risk of OSA, offering more effective resources for an appropriate and selective strategy to decide which patient should be submitted for the complete diagnostic procedure.

Hence, we value the authors' initiative for the development of this screening tool to identify a high risk of OSA among ACS patients. Previous OSA screening tools, such as the Berlin questionnaire and overnight auto-CPAP with low pressure for the identification of apnea–hypopnea index through its algorithm, have been tested in similar settings (4). The Berlin questionnaire depends on subjective data derived from the patients' self-reports. A more precise decision-making process can be achieved using objective information as used by this investigation, which built a prediction model based only on clinical and echocardiographic parameters, achieving a high accuracy level.

Future studies may consider a subsequent analysis to assess multicollinearity in the regression models for defining the OSACS score predictors. Most independent variables included in the OSACS score are possibly correlated with each other, which can influence the model's robustness, reducing the capacity of some potential predictors to significantly explain the high risk for OSA. As an example, obesity (BMI>30 kg/m^2) is associated with the risk of both ACS and OSA, regardless of other predictors (5).

This study presents a promising tool for the stratification of OSA risk in patients with cardiovascular disease. Because clinical and echocardiographic data from hospitalized ACS patients are easily available, the screening process has low cost and no adverse effects. We encourage the design of future studies addressing the validity of this new score in other populations across different settings and the investigation of whether OSA presence and its effective treatment impact ACS severity and extension of myocardial lesions.

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Author`s Reply

To the Editor,

Obstructive sleep apnea (OSA) is one of the sleep disorders highly prevalent in the general population and is more often found in men. In many cases it is associated with daytime sleepiness. OSA is not an isolated disease, but it directly affects the risk of development of other various conditions and their future course. Most of all, it is a negative prognostic factor for cardiovascular risk. In the general population, OSA has been linked to a number of conditions of the cardiovascular system, including heart failure, coronary artery disease, myocardial infarction, arrhythmias, pulmonary hypertension, stroke, insulin resistance, metabolic syndrome, prothrombotic state, erectile dysfunction, etc. (1) Recent studies suggest that OSA is a stronger predictor of coronary heart disease than the classical, well-established risk factors (2). Moreover, OSA is a predictor of a negative outcome in patients with established cardiovascular disease. As in patients after ST-elevation myocardial infarction, a population of patients in whom the concept of OSAS score was designed and initially tested (3). The risk described above is easily modifiable with proper treatment. Continuous positive pressure therapy is currently one of the most effective ways of OSA treatment and is able to not only improve the OSA control and daytime symptoms but also partially reduce OSA consequences such as hypertension.

Despite its high prevalence and well-described role in the pathogenesis of cardiovascular disease and its relatively easy treatment, OSA remains largely underdiagnosed. This is a problem especially in patients at a high cardiovascular risk. In a recent study conducted in a population of patients with diabetes mellitus, only 4.2% of the patients were treated for OSA, while the disease was diagnosed in twice as many patients (8.5%); however, the symptoms of daytime sleepiness were reported by as much as 16% of the entire study population. Only approximately 1 in 3 patients with daytime symptoms previously underwent a diagnostic evaluation (4).

The editorial comment on our article "OSACS score - a new simple tool for identifying high risk for Obstructive Sleep Apnea Syndrome based on clinical parameters" provides additional view on some issues addressed in the paper and considers important topics. New OSA risk scores such as OSACS are capable of improving the early diagnosis of the disease. Questionnaires such as the Berlin questionnaire or Epworth Sleepiness Scale were proven to be useful and cost effective. They are also helpful in everyday clinical practice where more advanced screening methods including polysomnography are less available. As it was emphasized in the article, the OSACS score is different from the other scales because it is the first one to be solely based on objective clinical parameters and not subjective symptoms. Moreover parameters included in the OSACS score such as left ventricular mass index, diastolic diameter, intraventricular septal thickness, blood pressure, and body mass index are routinely obtained in acute coronary syndrome patients in whom the scale was addressed. Calculation of the OSACS score does not require any additional diagnostic work-up from the physician; therefore, it is easy to perform and use.

As the Editors stated, the OSACS score needs validation in an external cohort, maybe also in a general population, not only patients with acute coronary syndrome. The external validation would improve the significance of the score and confirm its utility. Nevertheless, all the parameters used in the score were previously described in other studies to be associated with OSA. The first factor, obesity and hypertension (particularly resistant), are one of the most often described OSA predictors, and an increase in body mass is associated with the rising severity of OSA. Additionally, left ventriclular geometry is altered in OSA. Some studies show that OSA affects ventricular geometry irrespective of obesity (5). Increased blood pressure values were also described to be independently associated with OSA in numerous studies.

In conclusion, the OSACS score is a non-invasive, simple, and promising tool that may be useful in identifying OSA in acute coronary syndrome patients and in the future, possibly other groups of patients. After external validation, the OSACS score may help in the wider recognition of OSA as a non-classical risk factor. I may help improve the prognosis of patients and therefore reduce the burden of cardiovascular disease.

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Effect of percutaneous mitral balloon valvuloplasty on right ventricular functions in mitral stenosis: Short-and mid-term results

To the Editor,

We read the original investigation entitled "Effect of percutaneous mitral balloon valvuloplasty on right ventricular functions in mitral stenosis: Short- and mid-term results" by İnci et al. (1) published in the Anatol J Cardiol 2015; 15: 289-96 with great interest. We would like to touch on some points regarding this article.

A prospective study was conducted in 61 patients (age: 42.7±11.6 years) with isolated rheumatic mitral valve stenosis who underwent percutaneous mitral balloon valvuloplasty (PMBV). The patient population consisted of individuals with notable advanced ages. Although the authors stated clinical, echocardiographic, or angiographic evidence of coronary artery disease as exclusion criteria, there are some unclarified points. Firstly, what percentage of the patients underwent coronary angiography? Furthermore, it should be stated whether the patients with non-critical coronary artery disease were also included in the study.

Secondly, it should also be stated in the text that the clinical characteristics of the patients such as heart rate and systolic and diastolic blood pressures were similar before and after the procedure at the 3rd and 12th months. Otherwise, differences in these parameters will probably affect echocardiographic measurements (deceleration time, E peak, A peak, mean gradient, etc.) (2). In addition, pulmonary flow velocity, right ventricular filling fraction, and A wave, which also reflects right ventricular filling, have already been found to be increased, and right ventricle isovolumetric relaxation time has been found to be prolonged in hypertensive patients. The reduction of pulmonary valve acceleration time index in hypertension should also be noted (3).

Thirdly, mitral valve area assessment using the pressure half-time (PHT) method is not recommended, especially in the early period after