

Audrius Alonderis – “Sleep apnea in coronary artery disease patients: prevalence, cross-sectional predictors, association with left ventricular morphometry and function.”



Audrius Alonderis finished his studies and obtained diploma of medicine doctor at Lithuanian University of Health Sciences (former Kaunas University of Medicine) in 1996. In 2019 defended his PhD thesis extramurally. Audrius is working as a Junior Scientific Researcher in Laboratory of Behavioural Medicine at LUHS Neuroscience Institute and also as a medicine doctor in Palanga Clinic at LUHS Neuroscience Institute.

Audrius Alonderis took part in some international scientific projects such as FP6 IST Project “Advanced Sensor Development For Attention, Stress, Vigilance & Sleep/Wakefulness” 2004–2007, as a project member and in COST Actions: „Obstructive sleep apnea (OSA)“ (B26) and „Electric Neuronal Oscillations and Cognition (ENOC)“ (B27) as Management Committees member.

INTRODUCTION

Worldwide, the incidence of cardiovascular disease (CVD) continues to increase, and despite ongoing therapeutic advances, it continues to be associated with high rates of morbidity, hospitalization, and mortality. One area under active investigation is the treatment of sleep-disordered breathing (SDB), which is now recognized as a common comorbidity in a number of CVDs. Mounting clinical evidence suggests that the presence of SDB may have important implications on the long-term outcomes of patients with CVD.

Sleep apnea (SA) is a frequent sleep disorder that is known to be an independent risk factor for arterial hypertension. Hypertension age, diabetes mellitus and obesity are also contributors to left ventricular (LV) hypertrophy (LVH) and LV diastolic dysfunction, both of which are important causes of cardiovascular morbidity.

Sleep apnea is increasingly recognized as being important in the prognosis of patients with coronary artery disease (CAD); however, symptoms of SA are not easily identified, and as many as 80% of sufferers remain undiagnosed.

There is still insufficient knowledge on an impact of SA on LV geometry and on potential effect of mild to moderate sleep-disordered breathing, which is prevalent, often asymptomatic, and largely undiagnosed in stable CAD.

AIM

To determine prevalence of sleep apnea, characteristics, association with traditional CAD risk factors and to investigate association between sleep apnea and alteration in left ventricular morphometry and function in CAD patients in cross sectional study.

OBJECTIVES

1) To cross-sectionally investigate prevalence of sleep apnea and differences in clinical and polysomnographic characteristics in CAD patients with and without sleep apnea. 2) To explore whether routine clinical features from the study of patients with CAD could predict the presence of sleep apnea by two thresholds for diagnosing (apnea-hypopnea index ≥ 5 and ≥ 15). 3) To determine whether there are differences in risk factors for the presence of sleep apnea between men and women

with CAD. 4) To cross-sectionally investigate the association between sleep apnea and left ventricular morphometry in CAD patients. 5) To identify association between left ventricular diastolic function parameters and sleep apnea in CAD patients with left ventricular ejection fraction $\geq 50\%$.

CONCLUSIONS

1. Undiagnosed sleep apnea was prevalent (39%) in the CAD patients, especially in its asymptomatic mild form and even in the absence of excessive daytime sleepiness. The cardiovascular traditional risk factors such as age, male gender, obesity and hypertension, was more prevalent among patients with sleep apnea compared with patients without sleep apnea. Significant weak correlations were found between polysomnographic features and the sleep apnea severity.

2. The best predictors of the presence of mild-to-severe sleep apnea (apnea-hypopnea index ≥ 5) were hypertension, age, male gender, obesity and reduced left ventricular ejection fraction. While, male gender, age 50–70 years and, mainly, the presence of obesity but not hypertension were clinical predictors for moderate-to-severe SA (apnea-hypopnea index ≥ 15).

3. The risk factors for the presence of sleep apnea in women differed from those in men. An association between mild-to-severe sleep apnea and obesity was not evident in women. In addition, for women sleep apnea was associated with sleepiness.

4. Mild to moderate sleep apnea (apnea-hypopnea index 5–29) is cross-sectionally related to higher prevalence of left ventricular hypertrophy, independently of coexisting obesity, hypertension, diabetes mellitus or older age. Even mild sleep apnea (apnea-hypopnea index 5–14) is cross-sectionally associated with concentric left ventricular hypertrophy, independent of traditional CAD risk factors (e.g. obesity, hypertension, diabetes mellitus or older age).

5. Undiagnosed sleep apnea was highly prevalent (35%) among CAD patients with left ventricular ejection fraction $\geq 50\%$. Sleep apnea was associated with more severe diastolic dysfunction in individuals younger than age 60, independent of the traditionally recognized CAD risk factors.