Rev Port Pneumol. 2012;18(1):22–28

revista portuguesa de
PNEUMOLOGIA
portuguese journal of pulmonology
www.revportpneumol.org

ORIGINAL ARTICLE

# Sleep Apnea–Hypopnea Syndrome and Acute Coronary Syndrome – An association not to forget☆

**V. Areias[a,*], J. Romero[a], K. Cunha[a], R. Faria[b], J. Mimoso[b], V. Gomes[b], U. Brito[a]**

[a] *Pulmonology Department, Hospital de Faro, EPE, Faro, Portugal*
[b] *Cardiology Department, Hospital de Faro, EPE, Faro, Portugal*

Received 7 March 2011; accepted 7 July 2011

**KEYWORDS**
Sleep Apnea Syndrome;
Acute Coronary Syndrome;
Prevalence;
Screening

**Abstract**
*Aim:* To evaluate the prevalence of Sleep Apnea–Hypopnea Syndrome (SAHS) in patients who were admitted with Acute Coronary Syndrome (ACS) to the Coronary Care Unit (CCU) and the clinical predictors of SAHS in patients with ACS and to compare the results of the simple sleep test (SST) with polysomnography (PSG).
*Methods:* This was a prospective study that included patients who were admitted to the CCU with ACS, which was confirmed by coronary angiography. Demographic and anthropometric data, cardiovascular risk factors and measures on the Epworth Sleepiness Scale were collected. The SST was conducted with the ApneaLink™ device during hospitalization or after discharge. Patients with an apnea–hypopnea index (AHI) $\geq$10/h were invited to participate in PSG.
*Results:* Ninety-one patients with ACS were consecutively included over 4 months. Of the 58 patients who completed the study 43 (74.1%) were male. The mean age was 61.7 $\pm$ 12.2 years, and the mean body mass index was 27.4 $\pm$ 3.5 kg/m$^2$. The median time for SST performance was 17.5 days. This study was compatible with SAHS in 25 cases (43.1%). Patients who had an AHI $\geq$10/h in the SST were submitted to PSG and SST simultaneously. The median interval between the ACS and the execution of PSG was 30 days. PSG confirmed that all the cases detected by SST were positive.
*Conclusion:* In our study, we found a high prevalence of SAHS in patients who were admitted to the CCU with ACS (43.1%). These results support the need for SAHS screening in patients who are hospitalized with ACS. The SST may have a role in the screening of SAHS in this population.


☆ Please cite this article as: Areias V. Síndrome da Apneia-Hipopneia do Sono e Síndrome Coronária Aguda – Uma Associação a Não Esquecer. Rev Port Pneumol. 2012. doi:10.1016/j.rppneu.2011.07.004.

* Corresponding author.
*E-mail address:* vandareias@hotmail.com (V. Areias).

2173-5115/$ – see front matter 

**PALAVRAS-CHAVE**
Síndrome de apneia do sono;
Síndrome coronária aguda;
prevalência;
rastreio

**Síndrome da Apneia-Hipopneia do Sono e Síndrome Coronária Aguda – Uma Associação a Não Esquecer**

**Resumo**
*Objetivo:* Avaliar a prevalência da Síndrome de Apneia-Hipopneia do Sono (SAHS) em doentes internados na Unidade de Cuidados Intensivos Coronários (UCIC); determinar fatores clínicos preditivos de SAHS; comparar os resultados obtidos com o estudo de sono simplificado (ESS) com os da polissonografia (PSG).
*Métodos:* Estudo prospetivo de doentes internados na UCIC com Síndrome Coronária Aguda (SCA), confirmado por coronariografia. Foram avaliados dados demográficos e antropométricos, fatores de risco cardiovascular e valores da escala de sonolência de *Epworth*. O ESS foi realizado com ApneaLink™ durante o internamento ou após a alta. Os doentes com índice de apneia-hipopneia (IAH) $\geq$10/h foram convidados a realizar PSG.
*Resultados:* Durante 4 meses foram selecionados consecutivamente 91 doentes com SCA. Cinquenta e oito doentes completaram o estudo, sendo 43 (74,1%) do sexo masculino, média etária de 61,7 $\pm$ 12,2 anos e índice de massa corporal médio de 27,4 $\pm$ 3,5 kg/m$^2$. A mediana de tempo para realização do ESS foi de 17,5 dias. O estudo foi compatível com SAHS em 25 casos (43,1%). Aos doentes com IAH $\geq$10/h no ESS foi proposta a realização de PSG e ESS em simultâneo. A mediana do tempo entre SCA e a PSG foi de 30 dias. A PSG confirmou a positividade de todos os casos detetados pelo ESS.
*Conclusão:* No nosso estudo detetámos uma elevada prevalência de SAHS em doentes com SCA internados na UCIC (43,1%). Os resultados suportam a necessidade de um método de rastreio da SAHS em doentes internados com SCA. O ESS pode ter um papel importante no rastreio da SAHS nesta população.


## Introduction

Sleep Apnea–Hypopnea Syndrome (SAHS) is a significant public health problem because of its high prevalence and its association with hypersomnia, motor vehicle accidents, cardiovascular morbidity, cognitive disorders, anxiety, depression and metabolic abnormalities.[1,2] Young et al. observed an SAHS prevalence of 2–4% in the adult population.[3] However, recent studies indicate that 3.7–26% of the population has an apnea–hypopnea index (AHI) that is greater than 5 events per hour.[1] If we consider an AHI >5/h and the presence of hypersomnia to be joint indicators of SAHS, the estimated prevalence of SAHS is 1.2–7.5%.[1]

Ischemic heart disease, including Acute Coronary Syndrome (ACS), is also a serious problem due to its high prevalence, associated complications and mortality. Several studies have demonstrated an independent association between SAHS and ACS, which suggests that SAHS should be considered a risk factor in patients with ACS.[4–6] The changes that are observed in SAHS, particularly the intermittent hypoxemia, acidosis and sympathetic vasoconstriction, may lead to hemodynamic stress, which is particularly important in patients with coronary heart disease and can cause myocardial ischemia or nocturnal angina.[6–9]

Most patients with SAHS remain undiagnosed and untreated[10–12]; this is particularly important in patients with cardiovascular disease whose SAHS treatment is associated with a decrease in the occurrence of new cardiovascular events.[13]

The aim of this study was to evaluate the prevalence of SAHS in patients with ACS, determine the clinical predictive factors of SAHS and compare the correlation of the AHI that is obtained by a simplified sleep study device (SSD) with the AHI that is obtained by polysomnography (PSG).

## Methods

### Sample

This was a prospective study of 91 consecutive patients who were admitted with ACS to the Coronary Intensive Care Unit (CICU) of our hospital between May and August 2009 with a lesion that was demonstrated by angiography.

The exclusion criteria were as follows: non-resident in the reference area of the hospital, a previous diagnosis of SAHS, confused state, the ingestion of sedatives in the previous 24 h, hemodynamic instability, requiring oxygen therapy and patients who refused to participate in the study.

Permission was obtained from the Hospital Ethics Committee in accordance with the Declaration of Helsinki, and signed informed consent was obtained from the patients before the study.

### Study design

The following information was collected: demographics, drug habits, sleep habits, comorbidities, medication, symptoms that were suggestive of SAHS, the Epworth Sleepiness Scale (ESS), clinical data and the timing of acute coronary events, physical exam and anthropometric measurements.