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Evaluation of prevalence and risk factors of obstructive sleep apnea in patients with acute coronary syndrome: A prospective observational study

R. Mahendra Kumar

Department of Pharmacy Practice, School of Pharmaceutical Sciences, Vels Institute of Science, Technology & Advance Studies, Pallavaram, Chennai, India

E. Lavanyaa

Department of Pharmacy Practice, School of Pharmaceutical Sciences, Vels Institute of Science, Technology & Advance Studies, Pallavaram, Chennai, India

E. Lakshmi Priya

Department of Pharmacy Practice, School of Pharmaceutical Sciences, Vels Institute of Science, Technology & Advance Studies, Pallavaram, Chennai, India

D. Karthish

Department of Pharmacy Practice, School of Pharmaceutical Sciences, Vels Institute of Science, Technology & Advance Studies, Pallavaram, Chennai, India

J. Kathiravan

Department of Pharmacy Practice, School of Pharmaceutical Sciences, Vels Institute of Science, Technology & Advance Studies, Pallavaram, Chennai, India

M. Vara Prasanna Rao

Assistant Professor, Department of Pharmacy Practice, School of Pharmaceutical Sciences, Vels Institute of Science, Technology & Advance Studies, Pallavaram, Chennai, India

*Corresponding author email: mvprasanna90.sps@velsuniv.ac.in

Abstract---Background: The impact of obstructive sleep apnea (OSA) on later cardiovascular events in people with ACS is still unknown. The study's goal was to determine the prevalence and risk factors of obstructive sleep apnea in patients with acute coronary syndrome. The goal of this study is to use the Berlin Questionnaire to investigate the prevalence and risk factors of obstructive sleep apnea in patients with acute coronary syndrome. Method: A total of 60 patients were included in this cross-sectional investigation, and the prevalence and

risk were determined using the BQ categories, with the percentage derived correspondingly. Category 1 of the BQ includes five questions about snoring, category 2 three questions about daytime somnolence, and category 3 two questions about BMI. If the replies for snoring or daytime somnolence indicated chronic symptoms (> 3-4 times/week), these categories were rated as positive. The patient's BMI of greater than 30 kg/m² (obesity) implies a positive score in the third category. Patients over 45 years old and obese were shown to have a higher risk of OSA in this study. Results: Among 60 Participants, 10 patients were 36-45 years, 23 patients were 46-55 years, 16 patients were 56-65 years, 11 patients were 66 above. Out of 60 members, the BMI for the patients with <18.5/m² (underweight) were nothing, 18.5-24.9kg/m² (ordinary) were 3 (5.40%), 25-29.9kg/m² (overweight) were 30 (49.55%) and >30kg/m² (Obese) were 27 (45.05%) Conclusion: In light of the BQ, more sure (36.6%) reactions were seen in classification 1 (wheezing) when contrasted with class 2 (13.3%) and 3 (20%) which inferred that intense coronary disorder patients are at a high gamble (HR) for creating Obstructive Sleep Apnea.

Keywords---acute coronary syndrome, obstructive sleep apnea, berlin questionnaire, BMI, high risk.

Introduction

Obstructive sleep apnea (OSA) is a new cardiovascular OSA is a prevalent medical condition marked by upper airway instability during sleep, resulting in recurring episodes of airway blockage (complete or partial). According to recent studies, OSA affects 17 percent to 26 percent of males and 9 percent to 28 percent of women. This was identified as a significant contributor to rising morbidity and mortality rates. The rise in worldwide obesity is a key risk factor for OSA. As a result, more people are being diagnosed with this disease. Obstructive sleep apnea (OSA) is a new cardiovascular disease risk factor. Epidemiological studies have connected OSA to hypertension, stroke, heart failure, and an increased risk of atrial fibrillation. Furthermore, OSA is connected to the emergence of early atherosclerosis surrogate signs. Additionally, the characteristics of OSA pathophysiology in terms of oxygen supply and demand suggest that apnea-related hypoxemia may pose a disease risk factor. Epidemiological studies have connected OSA to hypertension, stroke, heart failure, and an increased risk of atrial fibrillation. Furthermore, OSA is connected to the emergence of early atherosclerosis surrogate signs.

Additionally, the characteristics of OSA pathophysiology in terms of oxygen supply and demand suggest that apnea-related hypoxemia may pose an additional risk to people with acute coronary syndromes. Previous observational studies looked at whether OSA increased the incidence of recurrent cardiovascular events in patients with ACS and/or those who had a percutaneous coronary intervention (PCI). However, the outcomes are mixed, and most investigations, with the exception of the Sleep and Stent research, were conducted before the advent of new generation drug-eluting stents and modern

antithrombotic medication, preventing definitive conclusions in the context of current therapeutic methods. We expected that the prognostic relevance of OSA would vary throughout time periods following ACS presentation, especially during the first year, because guideline-based optimal medical therapy was delivered after ACS start, especially within the first year. Acute coronary condition (ACS) is a significant wellbeing trouble, with more than 1 million patients experiencing ACS yearly in the USA.¹ The present moment and long haul anticipations following determination with ACS have improved (with intense revascularization and therapy of realized cardiovascular gamble factors). Nonetheless, significant dismalness and mortality remain, including rehash cardiovascular occasions. Obstructive rest apnea (OSA) is a typical infection that influences 20-30% of the grown-up population² and is brought about by the breakdown of the upper aviation route during rest. OSA has been related with an expansion in oxidative pressure, irritation, hypercoagulability, and thoughtful actuation that could initiate cardiovascular disease.³⁻⁴ Epidemiological examinations have shown that a high extent (40-60%) of patients with coronary course illness have OSA. Therefore, we performed a small-scale, prospective cohort study.

Materials and Methods

The researchers wanted to explore how OSA affects cardiovascular outcomes in people with ACS in this prospective cohort study. The current cross-sectional analytical investigation was conducted from October 2021 to March 2022 which lasted 6 months in Vadapalani Multispecialty Hospital in Chennai, Tamilnadu. The study included 60 people who had an acute coronary syndrome. The study was conducted using a questionnaire that included questions about Osa with acute coronary syndrome knowledge, attitude, and practise. Before beginning the study, IEC and informed consent were obtained. After a medical history and physical examination, the patients were diagnosed with OSAS. A BQ was completed for each patient to determine their chances. Occupational Safety and Health Administration is an acronym for Occupational Safety and Health Administration. According to the poll, patients are divided into three groups: high, medium, and low. The BQ is divided into three portions and comprises of ten questions. a situation with a high probability that is defined by the presence of two positive categories The first set of questions consists of five snoring-related inquiries. In two people, being symptomatic at least three to four times per week If there are at least three questions in this area, it is considered favourable. The second category has three elements. If somnolence happens during the day, it is considered beneficial. In two or more questions, the patient is symptomatic, three to four times per week in the third group, there are two people. Inquiries concerning BP or BMI history >30% kg/m² will be viewed positively by each of them. All of these are positive inquiries. The questionnaire was completed by patients who were illiterate or had a low level of education. The results were expressed in percentages AcS after the completed surveys were collected and analysed using SPSS software. Before beginning the study, IEC was obtained. Before the study could begin, the patients or carers had to complete an informed consent form. Patients who refused to participate or sign the informed consent form were not allowed to participate in the trial. The study comprised patients who had been diagnosed with obstructive sleep apnea and coronary artery syndrome, heart failure, catheterization, valvular heart disease, cardiomyopathy

CHD, chronic obstructive pulmonary disease are all candidates for treatment. Patients with recent cerebral hypoxia and oxygen therapy, patients with somatic aches and pains, and patients with a body mass index (BMI) of greater than 40 kg/m² were excluded. The design of the research and ethical committees gave their approval to the study. Consents from those who have been informed about the situation are likewise appropriate were collected from patients in order to obtain their permission to participate in the study.

Result

Among 60 Participants, 10 patients were 36-45 years, 23 patients were 46-55 years, 16 patients were 56-65 years, 11 patients were 66 above [Table 1] & Figure 1. Out of 60 participants, the BMI for the patients with <18.5/m² (underweight) were nil, 18.5-24.9kg/m² (normal) were 3 (5.40%), 25-29.9kg/m² (overweight) were 30 (49.55%) and >30kg/m² (Obese) were 27 (45.05%) [Table 2]Figure 2. Based on the age and gender distribution of the study participants, the prevalence of HR and LR was computed. 36-45 years (n=10) had an LR of 7 (76%) and an HR of 3 (24%), while 46-55 years (n=23) had an LR of 7 (76%) and an HR of 3 (24%). LR were 8 (34.21%) and HR were 15 (65.79%) among those aged 56 to 65 (n=16). HR were 15 (97.22 percent) and 66 years and older (n=11) and LR were 1 (2.78 percent). HR were 11 and LR were 0 percent (100 percent). Males (n=40) with LR were 13 (31.75 percent) and HR were 27 (68.25 percent), while females (n=20) with LR were 6 (31.75 percent) and HR were 14 (68.25 percent) [Table No. 3] HR and LR percentages were determined using BMIs of 18.5 kg/m² (n=0), 18.5 – 24.9 kg/m² (n=3), and 18.5 – 24.9 kg/m² (n=3). HR was 2% and LR was 1%, with HR ranging from 25 to 29.9 kg/m² (n=30). HR were (14%), LR were (16%), and LR were > 30 kg/m² (n=27). LR were (25 percent) and HR were (25 percent) (2 percent) [4th Table]. The BQ had elicited responses from all 60 patients, and they were grouped accordingly. There were 53 (89.19 percent) positive participants and 7 (10.81 percent) negative participants in Category 1, 24 (40.54 percent) positive participants and 36 (59.46 percent) negative participants in Category 2, and 45 (74.77 percent) positive participants and 15 negative participants in Category 3. (25.23 percent)

In this Research "The pervasiveness of chance for obstructive rest Apnea among patients with Cardiovascular patients with Acute coronary disorder", we observed that the patients with ACS have a HR for OSA in view of BQ which was in concurrence with Shim et al. also, different investigations (Shim et al., 2011); (Einhorn et al., 2007). For OSA, age is a contributing variable alongside the ACS and other comorbidities like hypertension and stoutness which was additionally revealed by (Jingyao ,2019) Fan. The predominance of OSA is more because of an overall flood in the matured populaces and stoutness (Usmani et al., 2012). Hardly any investigations expressed that male sexual orientations are the gamble factor for OSA (Khassawneh et al., 2009), however a few examinations observed that there was no massive contrast in the sexual orientations concerning risk for OSA (Sokwalla et al., 2017). The significant limit of this cross-sectional review is its inclination and the set number of hazard factors were analyzed. Besides, no OSA tests were performed for the patients to affirm the OSA finding. Consequently further investigations are expected to address these restrictions and affirm something very similar.

Table 1
Based on the Age group

FACTOR(AGE IN YEARS)	NUMBER OF PATIENTS (n=60)
25-35 years	NO
36-45 years	10
46-55 years	23
56-65 years	16
66-75 years	11

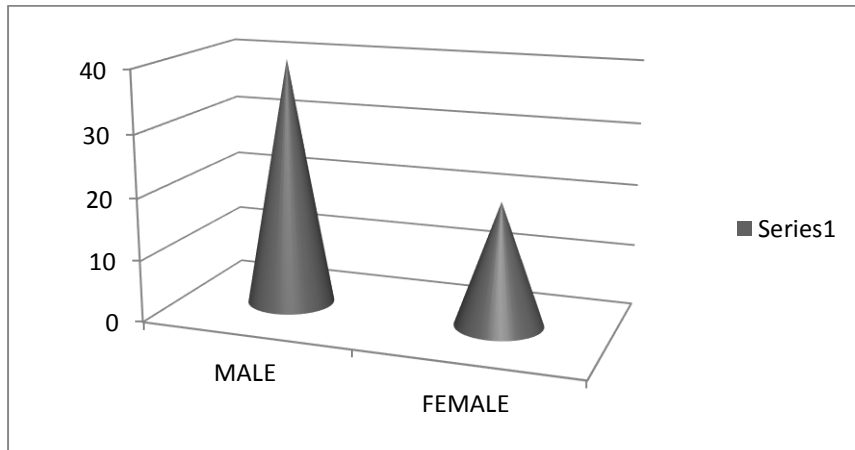


Figure 1. Based on Gender

Table 2
BMI Based distribution

BMI (kg/m ²)	No. of participants(n=60)	Percentage (%)
<18.5kg/m ²	0	0
18.5 kg/m ² -24.9kg/m ²	3	5.40
25 kg/m ² -29.9 kg/m ²	30	49.55
>30 kg/m ²	27	45.05

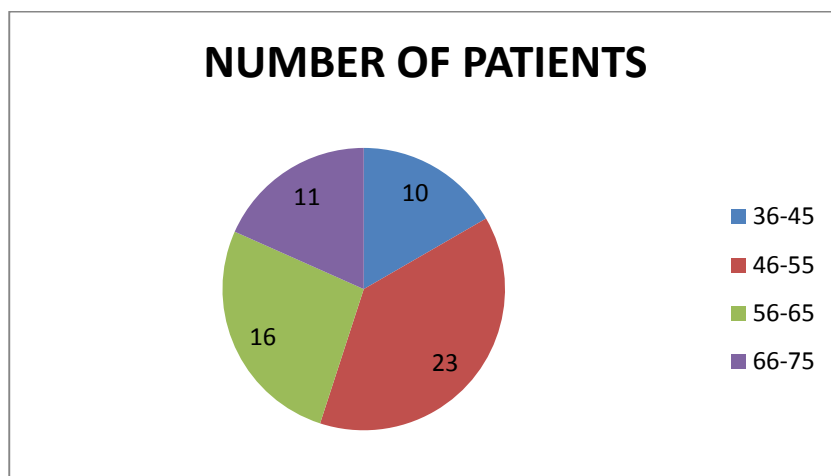


Figure 2. Based on the Age group

Table 3
Based on age and gender distribution, the prevalence of low and high risks

RISK	36-45 (n=10)	46-55 (n=23)	56-65 (n=16)	66 and above (n=11)	Male (n=40)	Female (n=20)
Low risk	7	8	1	0	13	6
High risk	3	15	15	11	27	14
Low risk%	76%	34.21%	2.78%	0	31.75%	29.17%
High risk%	24%	65.79%	97.22%	100%	68.24%	70.83%

Table 4
Based on BMI, the prevalence of high risk and low risk individuals

RISK	18.5 kg/m ² – 24.9 kg/m ² (n=3)	BMI 25 kg/m ² –29.9 kg/m ² (n=30)	> 30 kg/m ² (n=27)
Low risk	1	16	2
High risk	2	14	25
Low risk%	33.33%	50.91%	6%
High risk%	66.67%	49.09%	94%

Discussion

In this Research "The pervasiveness of chance for obstructive rest Apnea among patients with Cardiovascular patients with Acute coronary disorder", we observed that the patients with ACS have a HR for OSA in view of BQ which was in concurrence with Shim et al. also, different investigations (Shim et al., 2011); (Einhorn et al., 2007). For OSA, age is a contributing variable alongside the ACS

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Conclusion

Patients with ACS who have moderate or severe OSA had a worse long-term prognosis. According to our findings, the BQ was used to confirm the prevalence of high risk for Obstructive Sleep Apnea among ACS patients. They believe that these are More people gave positive responses in this area. 1 (snoring), indicating a high probability of OSA in ACS patients. As a result, health-care professionals need to be aware of the situation. Sufferers are responsible for preventing the spread of the disease and its repercussions.

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