THE OCCURRENCE OF OBSTRUCTIVE SLEEP APNEA IN DIALYSIS PATIENTS WITH RENAL FAILURE: AN INTEGRATIVE REVIEW

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ABSTRACT
Obstructive Sleep Apnea (OSA) is a common and potentially serious disorder in which the individual experiences breathing pauses; it can occur in individuals with Chronic Kidney Disease (CKD), which consists of a gradual and progressive loss of blood filtration capacity. The objective of this study was to investigate, based on scientific publications, the occurrence of obstructive sleep apnea in patients with CKD. This is an integrative literature review that used the databases Virtual Health Library (VHL) and the U.S. National Library of Medicine Thesaurus (PubMed). Articles published in English, Portuguese, and Spanish, available in full text, addressing the proposed topic and published in the last five years were included. The search resulted in a total of 124 scientific publications, of which only 4 met the inclusion criteria. The studies showed a high prevalence of OSA in CKD patients. In summary, the integrative review highlighted the importance of early diagnosis and multidisciplinary care, as well as emphasizing the need for regular screening and continuous monitoring of patients undergoing dialysis, and the development of guidelines and recommendations for the diagnosis and treatment of OSA in CKD patients.

Keywords: Sleep; Patients; Apnea; Chronic Kidney Disease.

INTRODUCTION

Obstructive sleep apnea (OSA) is a common and potentially serious disorder. It is a condition in which the individual experiences breathing pauses, meaning brief and repeated interruptions of breathing during sleep. The airways become blocked due to relaxation of the tissues of the pharynx and the base of the tongue, limiting the amount of air that reaches the lungs. Symptoms include loud snoring, choking or gasping sounds, morning headaches, and difficulty concentrating, as well as frequent nighttime awakenings to urinate. The main risk factors for OSA include obesity, tonsillar

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hypertrophy, increased neck circumference, and patients with Chronic Kidney Disease (CKD) (PALOMO, 2023).

Chronic kidney disease consists of renal dysfunction in which the kidneys gradually lose their ability to filter blood, a slow and progressive process, often unnoticed by the individual. When symptoms appear, the disease is usually in its advanced stage, and over time, the kidneys cease to function completely, requiring dialysis or kidney transplantation for survival. The main causes of CKD are diabetes and high blood pressure (BARROS et al., 2024).

When the kidneys gradually lose their filtration capacity, blood becomes more acidic, making dialysis necessary. In dialysis, the dialyzer filters metabolic wastes from the blood and returns purified blood to the body, removing excess fluids, toxins, and salts (AMMIRATI, 2023).

Many CKD patients undergoing dialysis develop OSA because the kidneys stop producing hormones that regulate blood pressure, lose control of blood pH, and influence several factors leading to sleep apnea, causing swelling, weight gain, and sleep dysfunction (JAMWAL et al., 2023).

The relationship between OSA and CKD is bidirectional: OSA can accelerate CKD progression, and CKD can exacerbate OSA. Understanding these interactions is essential to develop treatment strategies that effectively address both conditions simultaneously. Therefore, this study aimed to review scientific production regarding the occurrence of obstructive sleep apnea in dialysis patients with chronic kidney disease.

METHODOLOGY

This is an integrative review of scientific production regarding the occurrence of OSA in dialysis patients with CKD. The search strategy used the descriptors: “apnéia obstrutiva do sono,” “insuficiência renal crônica,” and “diálise renal” confirmed in DeCS (Health Sciences Descriptors) of the Virtual Health Library, and their English equivalents: “obstructive sleep apnea,” “chronic renal failure,” “kidney dialysis,” using the Boolean operator “AND.”

The databases used were the Virtual Health Library (VHL) and the U.S. National Library of Medicine Thesaurus (PubMed).

Inclusion criteria: studies published in the last five years (2019–2024), in Portuguese, English, or Spanish, available in full text, addressing the proposed theme. Exclusion criteria: studies not addressing OSA in CKD patients, studies with distinct populations such as pediatric or palliative care, duplicate articles, or articles not freely available in full text.

The search retrieved 124 articles (40 in VHL and 84 in PubMed). After screening titles and abstracts using the PRISMA protocol, 107 were excluded for not meeting inclusion criteria, 3 were duplicates, 9 addressed other topics, and 1 was an integrative review. The final sample comprised 4 scientific articles, whose content was analyzed and discussed.

RESULTS

The reviewed scientific production investigated OSA in dialysis patients in Senegal (128 patients; MOHAMED et al., 2019), Córdoba, Spain (119 patients; MORENO-EGEA et al., 2020), Rio de Janeiro, Brazil (73 patients at CKD stages 3–4; FERNANDES et al., 2019), and a study with 111 patients, 31% in early-stage CKD and 45% in late-stage CKD (JAMWAL et al., 2023).

These were cross-sectional studies examining sleep in CKD patients, using instruments such as the Berlin Questionnaire, the Pittsburgh Sleep Quality Index, total body adiposity measured by dual-energy X-ray absorptiometry (DXA), anthropometric measures, and Body Mass Index (BMI) (SECK et al., 2019; MORENO-EGEA et al., 2020; FERNANDES et al., 2019; JAMWAL et al., 2023).

In the Senegalese dialysis study, OSA was common among 128 patients. Main associated factors included age, neck circumference, and excessive daytime sleepiness. About 25.8% were obese, and 40.6% had abdominal obesity; however, no correlation was found between OSA and BMI, smoking, or weekly dialysis sessions (SECK et al., 2019).

In the nephrology service study in Córdoba, Spain, 83% of dialysis patients suffered sleep disturbances. Participants were CKD stage 4–5 patients, with older age being a major factor influencing sleep problems (MORENO-EGEA et al., 2020).

In non-dialysis CKD patients (Brazil), OSA occurrence and its association with body adiposity and sarcopenia were evaluated. Among 73 patients, 67% had OSA: 34% mild, 23% moderate, and 10% severe. Total and upper-body obesity were associated with higher OSA prevalence. Among obese participants by BMI, 92% had OSA (FERNANDES et al., 2019).

In Jamwal et al. (2023), of 111 patients, 15 (33%) had mild OSA (AHI 5–14/h), 13 (28%) moderate (15–29/h), and 18 (39%) severe (AHI ≥30/h).

Four major aspects were highlighted: prevalence and risk factors, age influence, obesity, and BMI. OSA is frequent in non-dialysis CKD patients, particularly in overweight and obese subjects.

In Brazil and Senegal, OSA prevalence was high (67% and 41.4%, respectively), with obesity being a risk factor in Brazil (92% obese sample). In Spain, sleep disturbance prevalence was higher (83%), but no relationships were found with sex, renal clearance, or BMI.

Age was a relevant factor: older age was associated with sleep disorders in Spain and Senegal. In Senegal, patients over 50 had a 71.7% OSA prevalence, emphasizing age as a risk factor.

This underscores the importance of regular screening, continuous monitoring of dialysis patients, and development of guidelines for OSA diagnosis and treatment in CKD patients, improving care accuracy and effectiveness.

CONCLUSION

The analyzed results reveal a significant prevalence of obstructive sleep apnea (OSA) in patients with chronic kidney disease (CKD), both dialysis and non-dialysis, with obesity and advanced age as predominant risk factors. The high prevalence observed in different countries (Brazil, Spain, and Senegal) highlights the need for systematic screening of this condition in CKD patients, especially among obese individuals and those over 50 years old.

The studies also indicate that OSA is frequently associated with body adiposity, particularly abdominal and upper-body obesity, reinforcing the importance of monitoring anthropometric conditions as part of comprehensive care for CKD patients. Although not all risk factors, such as BMI and smoking, showed direct correlations in every study, obesity and aging remain important determinants for OSA occurrence in CKD patients.

These findings emphasize the need for healthcare services to establish screening and treatment protocols for OSA in CKD patients, particularly in high-risk populations like the elderly and obese. The implementation of specific guidelines integrating early diagnosis and OSA treatment, alongside studies evaluating therapeutic interventions and the relationship between OSA severity and CKD progression, especially in advanced stages, is crucial. Regular screening and continuous monitoring, combined with specific guidelines for OSA diagnosis and treatment in CKD patients, are essential to improve care quality and patient health outcomes.

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