

Hospital Sleep Medicine: The Elephant in the Room?

Commentary on Kauta et al. Diagnosis and treatment of sleep disordered breathing in hospitalized cardiac patients: a reduction in 30-day hospital readmission rates. *J Clin Sleep Med* 2014;10:1051-1059 and Shear et al. Risk of sleep apnea in hospitalized older patients. *J Clin Sleep Med* 2014;10:1061-1066.

Sunil Sharma, M.D., F.A.A.S.M.

Jefferson Sleep Disorders Center, Thomas Jefferson University and Hospitals, Philadelphia, PA

Despite extensive data on cardiovascular implications of sleep disordered breathing, we, as sleep physicians, have somehow managed to steer clear of hospital sleep medicine. Whether it was the demand of an over-stretched out-patient practice, lack of inpatient diagnostic tools or lack of reimbursement, hospital sleep medicine has been overlooked. This is emerging as a key area for improvement of a variety of comorbidities and potential area of growth for sleep medicine. Amongst hospitalized patients, a high prevalence of sleep disordered breathing (SDB) in disorders such as congestive heart failure (CHF), type-2 diabetes mellitus (DM), hypertension (HTN), atrial fibrillation and obesity hypoventilation syndrome (OHS) among others, makes the hospital a happy play ground for sleep disordered breathing in particular, and other sleep disorders in general. A study by Dr. Collop and colleagues in 2008, revealed a high prevalence (77%) of SDB in hospitalized patients.¹ Recently, a study by Somers et al. associated SDB with sudden cardiac death.² While several studies have demonstrated improvement of pump function in stable heart failure patients, a small RCT performed on acutely decompensated CHF demonstrated improved ejection fraction even in hospitalized patients.³ The critical question, however, is whether or not intervening makes a difference.

In light of these studies and the changing scenario of the medical landscape, there are two studies in this issue of *JCSM*, which contribute to our current understanding of hospital sleep medicine. The study by Dr. Kauta and colleagues reveals the potential benefits of early intervention in hospitalized patients. The authors evaluated patients admitted to cardiac intermediate care unit (CICU), for potential SDB. Patients clinically suspected of SDB underwent an in-hospital portable sleep study (5 channel). Patients with AHI of 5 or more were offered auto-CPAP and compliance was monitored. Primary goal was readmission in 30 days to the hospital or visit to the emergency department (ED). Of the 106 clinically screened patients, 79% were found to have SDB. Of these 81 patients, 50 were finally sent home on Auto-CPAP. The compliance data was available on 42 patients, of which 19 were deemed as compliant with the therapy. The study demonstrated that patients who were non-compliant were more likely to get admitted within 30-day period ($p = 0.045$).⁴ The study suggests that in patients with SDB, early intervention may reduce readmission rate in cardiac

patients (the majority of patients had CHF). Somewhat perplexingly, despite predominantly CHF population (86%), only 20% of the patients were classified as having central sleep apnea (CSA), which is at odds with prior studies on stable and decompensated CHF patients.^{5,6} The most likely explanation for this discrepancy may be due to the screening protocol favoring OSA (high BMI, loud snoring, oro-pharyngeal crowding). The small cohort of central sleep apnea patients in this study still raises the question of whether this benefit extends to CSA or is limited to obstructive sleep apnea (OSA). Another limitation of the study is the lack of data on medication compliance, which may significantly influence re-admissions. Nonetheless, these findings, if confirmed with a randomized control trial, will have significant implications on the role of hospital sleep medicine in addressing the high cost of readmissions in congestive heart failure/other cardiac patients.

Fortunately, there are a few large studies pending, looking at this very issue. One such trial currently recruiting is the Cardiovascular Improvements with Minute Ventilation-targeted ASV Therapy in Heart Failure (CAT-HF) study. The primary goal of this multi-center randomized controlled trial is to determine whether early diagnosis and intervention in patients hospitalized with decompensated CHF will improve patient outcome, as measured by a composite of six minute walk distance (6MWD), cardiovascular hospitalizations, and death. This study will also assess changes in functional parameters, biomarkers, quality of life (QOL), and sleep and breathing.⁷

Also in this issue Dr. Arora and colleagues report a 40% prevalence of high risk for OSA in elderly hospitalized patients who were screened by Berlin questionnaire. Using an actigraphy watch, the authors reported poor sleep efficiency and reduced sleep time in the high-risk population.⁸ The authors also highlighted poor awareness of sleep disorders among resident physicians, and lack of documentation of sleep history and sleep associated symptoms. This is further complicated by the lack of hypersomnolence reported in hospitalized patients. Since excessive daytime sleepiness is an important component of most screening tools, its use and validity in hospitalized patients needs to be established.

Further exploration is required for cost effective strategies of identifying high risk hospitalized patients and determining the impact on various quality indices, including length of stay,

in-hospital complications, ICU transfer or night-time adverse events in high risk populations. Additionally, the motivation and compliance of these patients diagnosed “in hospital” compared to established data in outpatient setting, will have an important bearing on the outcome.

Confirmation of short and long term benefits of hospital sleep medicine in conjunction to a cost effective screening strategy could lead to a paradigm change on how we practice and view sleep medicine in hospitalized patients. As there are pressures on hospitals to account for post discharge outcomes, optimal management of SDB takes on a greater significance and urgency. With such potentially profound implications we cannot continue to ignore the elephant in the room...can we?

CITATION

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Address correspondence to: Sunil Sharma, M.D., F.A.A.S.M., Associate Professor of Medicine, Director, Pulmonary Sleep Medicine, Associate Director, Jefferson Sleep Disorders Center, Thomas Jefferson University and Hospitals, 211 South Ninth Street, Suite 500, Philadelphia, PA 19107; Tel: (215) 955-8285; Fax: (215) 955-9783; E-mail: Sunil.Sharma@jefferson.edu

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