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COMMENTARY

Sleep apnea 20/20: a 20-year cohort that continues to inform the next 20 years

Commentary on Marshall NS, Wong KK, Cullen SR, Knuiman MW, Grunstein RR. Sleep apnea and 20-year follow-up for all-cause mortality, stroke, and cancer incidence and mortality in the Busselton Health Study cohort. *J Clin Sleep Med*. 2014;10(4):355–362. doi:10.5664/jcsm.3600

Salma I. Patel, MD, MPH[1,2]; Daniel Combs, MD[1,2,3]; Sairam Parthasarathy, MD[1,2]

[1]*UAHS Center for Sleep and Circadian Sciences, Tucson, Arizona;* [2]*Division of Pulmonary, Allergy, Critical Care Medicine and Sleep Medicine, University of Arizona, Tucson, Arizona;* [3]*Department of Pediatrics, University of Arizona, Tucson, Arizona*

There are moments in time when we need to look back and gain perspective of how far we have come. As we look back in time and chronicle, as we do for this edition of the *Journal of Clinical Sleep Medicine,* we are not merely creating a cumulative count of all of the developments and discoveries since an important prior publication, but we place such a publication under the lens of time. We do that to see if the findings stood the test of time or remained clouded from scientific understanding. The study by Marshall et al[1] reported the association between obstructive sleep apnea (OSA) and all-cause mortality in a then 20-year-old (Busselton Health Study) cohort. In their study, the authors found that moderate-to-severe OSA was associated with a 4-fold increase in all-cause mortality and a 4-fold increase in risk of stroke. Despite the acknowledged limitations that included an underpowered sample and methodology for home sleep study, the findings remain firmly entrenched in the bastions of scientific literature along with that of others.[2–4]

Such findings lend credence to prior work that elucidated the mechanistic underpinnings for such cardiovascular morbidity and mortality, such as known increases in inflammation, oxidative stress, and endothelial dysfunction.[5] However, the relationship between OSA and cancer seem more complex.[6] While the Busselton Health Study, Wisconsin Sleep Cohort Study, and the Spanish Multicenter Cohort Study have found clear associations between OSA and cancer, others have failed to find such an association.[1,7–10] A more systematic approach to elucidating the underpinning mechanisms as well as building cohorts that are designed to address the association between OSA and cancer as opposed to repurposing existing cohorts has been proposed.[6] Such perspective calls for a more in-depth understanding of the molecular and cellular mechanisms that underpin the relationship between OSA and cancer biology before embarking on a large and expensive cohort.[11,12] While limitations of space and competence in the area of cancer biology prevent us from delving deeper, it would suffice to say that the work by Marshall et al has spurred intense investigation into this important area.

Over the past 15 years, the findings of increased all-cause mortality by Marshall et al and others have stimulated many clinical intervention-based trials aimed at understanding the causality of the association between OSA and cancer- or cardiovascular-related mortality. However, recent efforts have failed to demonstrate improvements in cardiovascular or all-cause mortality.[13] While there are many postulated reasons for the lack of a cardiovascular benefit, a very important factor was the poor adherence to continuous positive airway pressure therapy. More studies are needed to explore the combinatorial effect of continuous positive airway pressure with adherence-promotion interventions on cardiovascular- and cancer-related outcomes. Our commentary was not meant to be of pedagogic utility but is meant to gain 20/20 vision of the important work by Marshall et al and contextualize their work to the current conditions. While we highlight the successes of prior work, we wish to bring attention to the failures of verisimilitude that are thoroughly worth pursuing for the next 5 years.

CITATION

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Address correspondence to: Sairam Parthasarathy, MD, University of Arizona College of Medicine, 1501 N. Campbell Ave, Tucson, AZ 85724-5030A; Tel: (520) 626-8309; Fax: (520) 626-1876; Email: sparthasarathy@deptofmed.arizona.edu

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