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LETTERS TO THE EDITOR

Circadian factors in comorbid insomnia and sleep apnea

Response to Salles C, Meira e Cruz M. Impact of CBTi in COMISA: could it mean a "masking effect" of the circadian time machinery on the psychosocial stress factors? *J Clin Sleep Med*. 2021;17(9):1957–1958. doi:10.5664/jcsm.9364

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We thank Salles and Meira e Cruz for their response[1] to our recent publication investigating the effects of depression, anxiety, and stress symptoms on response to cognitive-behavioral therapy for insomnia in patients with comorbid insomnia and sleep apnea (COMISA).[2] We agree with the authors that it is important to investigate the contribution of circadian factors to the prevalence and treatment of COMISA. In addition to the points raised by Salles and Meira e Cruz, we highlight additional research questions related to circadian misalignment in patients with COMISA because this is an emerging priority in our group. Progressing with this research is an important priority for identifying pathways and targeting treatment approaches in patients with COMISA.

Approximately 30%–50% of patients with obstructive sleep apnea (OSA) report insomnia symptoms, whereas 30–40% of patients with insomnia have comorbid OSA.[3] These prevalence estimates are higher than would be expected, based on the general population prevalence of insomnia alone and OSA alone, potentially indicating causal associations between the 2 disorders. It is feasible that circadian factors contribute to the high prevalence of COMISA. Unfortunately, however, there is a significant gap in research that has considered circadian rhythms in clinical sleep disorders broadly and limits our understanding.

We propose that the next step will be to identify the contribution of circadian misalignment to patients with COMISA in clinical settings. Dim-light melatonin onset is the 'gold standard' measure of circadian phase. Although dim-light melatonin onset has been investigated in patients with insomnia alone and OSA alone,[4] we are not aware of any research investigating dim-light melatonin onset in COMISA. It is possible that circadian factors play an important role in the development of COMISA through shared risk factors and/or causal pathways between the 2 disorders. For example, bidirectional relationships between the timing of sleep, energy intake, and energy expenditure may contribute to sleeping difficulties, development of insomnia symptoms in response to perceived sleep loss/effects, gradual weight gain, and increased risk of OSA.

As highlighted by Salles and Meira e Cruz,[1] circadian factors may also have treatment implications in COMISA. For example, irregular bedtime (a potential marker of circadian disruption) may be related to reduced continuous positive airway pressure adherence and inferior management of OSA.[5] It is possible that a delayed circadian rhythm may contribute to sleep-onset insomnia symptoms, extended time trying to fall asleep wearing pressurized continuous positive airway pressure equipment, and a higher likelihood of continuous positive airway pressure rejection.[3] If circadian misalignment is present in these patients, then it is important to identify and treat this with targeted evidence-based therapies. For example, our insomnia treatment clinic has previously operated in a multidisciplinary setting including insomnia, sleep apnea, and circadian specialists. We have utilized combined treatment approaches in patients with chronic insomnia and obvious advanced-/delayed-phase symptoms (eg, with combined sleep education, bedtime restriction therapy, and evening/morning bright-light therapy, respectively[6]) and sequenced therapies including cognitive-behavioral therapy for insomnia before commencing continuous positive airway pressure therapy if OSA is also present.[7]

We thank Salles and Meira e Cruz[1] once again for their letter and look forward to future research investigating circadian factors related to the development, maintenance, and treatment of COMISA.

CITATION

Sweetman A, Reynolds A, Lack LC. Circadian factors in comorbid insomnia and sleep apnea. *J Clin Sleep Med*. 2021;17(9):1959–1960.

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DISCLOSURE STATEMENT

All authors have seen and approved this manuscript. LL is a shareholder in Retime (Pty Ltd. Australia). AS and AR report no conflicts of interest.