LETTERS TO THE EDITOR

Error in Calculation of Predictive Values in Paper on Screening for Sleep Bruxism

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The paper by Palinkas et al.[1] examining alternate methods for detecting sleep bruxism (SB) represents an important contribution, by showing the relative poor yields from traditionally used measures such as tooth wear, compared to gold standard polysomnographic (PSG) measurement. Ultimately, they recommend that the AASM criteria be used as the best screening tool for SB. This is based in part on a relatively high reported PPV of 76% and NPV of 66%. When looking for a screening measure having clinical utility, it seems reasonable to support one that, when yielding a positive result, is likely to accurately predictive positive PSG findings of SB more than three-quarters of the time. Unfortunately, the authors have overlooked the fact that prevalence of a condition affects predictive values (e.g.,[2]). This is why statistics that are independent of prevalence, like sensitivity and specificity, are typically presented in studies such as theirs, even though predictive values are more clinically useful. Recent research suggests that the population prevalence of SB is low. One population-based study suggests a prevalence of 7%,[3] while a smaller study not selecting participants on the basis of PSG findings[4] suggests PSG-based prevalence rates closer to 10%. However, Palinkas et al.[1] created a case and control group of equal sizes, so that the combined sample has a 50% prevalence of gold standard PSG-assessed SB. If we were to assume that prevalence of PSG-assessed SB was 10% rather than 50%, as is more likely in the general population, the high PPV for the AASM criteria of 76% drops to 26%. Thus, the clinical utility of AASM criteria in a more representative sample of individuals is likely to have been overstated as an artifact of the study's sampling methods. The same problem is true for other potentially promising screening tools, such as temporal headache or muscle fatigue (PPV of 29% and 24% respectively, recomputed based on a 10% population prevalence rate). Thus, it does not appear that any of the proposed screening methods are likely to have clinical utility, given their low PPVs. Recalculation of NPVs based on a 10% gold standard prevalence of SB indicates that NPVs will be quite good for many of the screening measures. However, in the absence of a screening measure having high PPV, it would appear that none would be clinically useful to screen for PSG-assessed SB.

CITATION

Raphael KG. Error in calculation of predictive values in paper on screening for sleep bruxism. *J Clin Sleep Med* 2016;12(2):277.

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DISCLOSURE STATEMENT

The author has indicated no financial conflicts of interest.