LETTERS TO THE EDITOR

Diagnosing sleep-disordered breathing in neuromuscular diseases in 2021


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We thank Dr. Hunasikatti for the interest in our work.1 In our study, we compared a home sleep apnea testing (HSAT) device with polysomnography (PSG) for the assessment of sleep-disordered breathing in a group of individuals with neuromuscular disease (NMD), including adolescents, because the American Academy of Sleep Medicine allows the scoring of respiratory events as per adult criteria for adolescents aged ≥ 13 years (The AASM Manual for the Scoring of Sleep and Associated Events: Rules, Terminology and Technical Specifications, version 2).2 Our study included only a small number of adolescents, and we found the feasibility of HSAT to be quite poor in that group with the device that we used. Our conclusion states that feasibility in adolescents with NMD is not indicated.

With HSAT, the lack of electroencephalography recording to detect arousals is a problem in adults as it is in adolescents. The bias between PSG and HSAT in our study is therefore not unlike that in studies of obstructive sleep apnea in the general population.3 The use of autonomic arousals as a surrogate for electroencephalographic (EEG) arousals helps partially alleviate this problem.4 Our data support the use of HSAT for ruling in but not ruling out sleep-disordered breathing in selected patients with NMD. Few participants in our study had evidence of a significant restrictive syndrome or chronic ventilatory failure. Therefore, our results should not be extrapolated to populations that are more severely impaired.

We showed in our group that although the time with oxygen saturation < 90% was strongly correlated with daytime CO2 values, some individuals with hypercapnia had very little nocturnal hypoxemia. Therefore, we agree that direct measurement of CO2 remains the most accurate method to identify sleep-related hypoventilation. The distinction between upper airway obstruction and hypoventilation from respiratory muscle weakness is difficult to make, because they could both appear as hypopneas on HSAT and PSG. Therefore, strong clinical suspicion for hypoventilation needs to be part of decision-making for treatment. Notably, in the setting of daytime hypercapnia, sleep testing is not necessary and ventilatory support (rather than continuous positive airway pressure) should be initiated.

We hope that our study will encourage others to continue in this field to develop improved HSAT systems for adolescents and adults with NMD. Disadvantages of PSG include limited availability, high cost, and inconvenience to the patient with NMD (laboratories may not be adapted), which may lead to deferred testing and delayed diagnosis and treatment. HSAT holds nonnegligible advantages and represents an alternative that needs to be seriously considered to help identify sleep-disordered breathing (particularly severe sleep-disordered breathing) in selected patients with NMD. Clinical practice guidelines evolve with changing practices and new published data. We agree that current data do not allow the recommendation of widespread use of HSAT instead of PSG in patients with NMD, particularly those at risk for hypoventilation. However, with the recent and ongoing explosion of technological advances for use in medicine and expanding telemedicine applications, and in the context of a pandemic, we owe it to one of the most vulnerable populations—those with NMD—to explore and develop options for safe, timely, and accurate diagnostic home sleep testing. We hope that our study will be a small stepping-stone toward achievement of this goal by the broader sleep community.

REFERENCES


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