



Home Sleep Testing: It's Not How You Play the Game, It's Whether You Win or Lose

Commentary on Ward et al. A comprehensive evaluation of a two-channel portable monitor to “rule in” obstructive sleep apnea. *J Clin Sleep Med* 2015;11:433–444.

John G. Park, MD; Peter C. Gay, MD

Division of Pulmonary, Critical Care, and Sleep Medicine, Mayo Clinic, Rochester, MN

The landscape of Sleep Medicine is dramatically changing. Pressures from government and private payers combined with the need for more efficient care plans are forcing us to rethink the traditional algorithms for managing our patients with sleep apnea. With the increasing pool of undiagnosed obstructive sleep apnea (OSA) patients and shrinking Sleep Medicine clinics, we need to find innovative ways to manage these patients—from diagnosis to ongoing care for their chronic disease.

In this issue of the *Journal of Clinical Sleep Medicine (JCSM)*, Ward et al. have taken on that challenge by pushing the boundary of diagnostic testing using a type IV portable monitor (PM).¹ Using a rigorous study protocol of testing the device at home and in the lab (simultaneously with a lab polysomnogram [PSG]) and in a randomized order of testing, they showed that their 2-channel PM (ApneaLink, ResMed, San Diego, CA) was able to reliably confirm the diagnosis of sleep apnea in those with high pretest likelihood of having OSA (sensitivity 80%, specificity 83%, positive likelihood ratio 4.8). This study, excepting its limitations, provides much needed validation for the use of a simplified PM to adequately diagnose OSA in a timely fashion in the appropriate patient population. Their carefully designed study to ensure high quality results gives us some confidence in the reliability of their findings.

As we design an efficient care model for our patients with OSA, we need to be cautious about sacrificing the quality and the comprehensive nature of care our patients deserve. As with any chronic condition, adequate management of OSA extends beyond expedient diagnosis sufficient to provide a prescription for a therapeutic device. Even before testing is done with a PM, adequate training is needed to identify appropriate patients to be tested with such technology. In a recent survey of 367 primary care physicians (PCP), knowledge score using the OSA Knowledge and Attitude questionnaire was only 60%.² Less than half of the surveyed physicians were aware that women with OSA may present with fatigue or that collar size of more than 17 inches in men were associated with OSA.² Similarly, in a survey of 145 general internists, the majority expressed a lack of confidence regarding administering and interpreting sleep test results.³ These findings emphasize the need for some degree of specialized training to ensure that appropriate patients are selected for PM testing.

Once the test is completed, a multidisciplinary team is needed to download and manually score the data. Manually scoring the data, rather than relying on the automated scoring algorithm reduced missed cases by up to 18%.⁴ Similarly, ordering clinicians must be cognizant that PM can underestimate disordered breathing index by as much as 22 events/h.¹ Such results suggest that testing with PM may not only underestimate the severity of disease, but may miss the diagnosis of OSA entirely. More concerning is the potential for wrong diagnosis of OSA given that most type IV and some type III PM may not be able to adequately differentiate between obstructive and central respiratory events. Thus a knowledgeable and adequately trained clinician is required to decide whether to pursue further testing regardless of the results from a PM.

If the care of a patient diagnosed with OSA is then left to inadequately trained clinicians to continue the management, outcome is less than desirable.⁵ At the outset, we need to understand that as much as 83% of patients prescribed CPAP will not adhere to or tolerate this device.⁶ This is not necessarily to say that a board-certified sleep physician is the only clinician capable of managing a comprehensive care plan. A randomized controlled trial conducted in Australia evaluated a simplified model of care for obstructive sleep apnea in a primary care setting.⁷ Sleep specialists introduced a screening program to a group of PCPs and then used a PM to confirm OSA. Qualifying OSA patients were randomized to compare management with either usual care guided by a sleep physician in a specialty sleep center with lab-based testing, or management led by their PCP with a community-based nurse (well trained in sleep medicine) and auto-titrating CPAP done in the home after positive PM. The authors reported that CPAP compliance in the specialist group was not significantly better but was significantly cheaper in the primary care-based group. In this same trial, however, nearly 10% of patients dropped out at 6 months due to CPAP intolerance in the primary care group, whereas such dropout was not noted in the specialist group.⁷ This highlights the need to assess and intervene early during the patient's treatment course to provide recommendations and guidance in improving adherence to this effective therapy.

This is better accomplished with a well-trained multidisciplinary team to help with mask sizing, desensitization, and troubleshooting. Management of OSA is not limited to simply

providing a treatment device, but also guidance and encouragement at weight management, assessing for factors that may mitigate the effectiveness of PAP devices (e.g., nasal congestion, allergies, acute narcotic uses, alcohol consumption, inadequate maintenance of their device, weight gain, comorbid sleep disorders) and to assess adequacy of treatment and monitor for the need to consider alternative treatment options.

Adequately designed studies validating efficient means of diagnosing OSA are much needed. Ward and colleagues have done that well with their study using ApneaLink (a type IV PM) in this issue of *JCSM*.¹ However, we need to not lose sight of OSA as a chronic disease and its management is simply more than providing a therapeutic device. This would be akin to simply referring a morbidly obese patient to a bariatric surgeon without any discussion or interventions about lifestyle modifications or addressing comorbid conditions. Management of our patients with OSA deserves a well-trained multidisciplinary team to not only ensure accuracy of the diagnosis but also in chronic management of their disease to ensure successful outcomes and mitigate negative impacts of untreated or poorly treated OSA.

CITATION

Park JG, Gay PC. Home sleep testing: it's not how you play the game, it's whether you win or lose. *J Clin Sleep Med* 2015;11(4):411–412.

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SUBMISSION & CORRESPONDENCE INFORMATION

Submitted for publication February, 2014

Accepted for publication March, 2014

Address correspondence to: Peter C. Gay, MD, 200 First Ave SW, Rochester, MN 55905; Tel: (507) 293-1031; Fax: (507) 266-7772; Email: pgay@mayo.edu

DISCLOSURE STATEMENT

This was not an industry supported study. The authors have indicated no financial conflicts of interest.