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COMMENTARY

"Please, sir, I want some more."

Commentary on Prasad et al. Short-term variability in apnea-hypopnea index during extended home portable monitoring. *J Clin Sleep Med* 2016;12(6):855–863.

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These memorable words of Oliver Twist were so moving because the gap between the existential need of Oliver and the trivial cost to meet that need was profound. Forty years after the clinical description of obstructive sleep apnea, we are left with a hunger to know more about "mild sleep apnea" patients. In this issue of *JCSM,* Prasad and coworkers[1] reported on 84 patients who had in-center polysomnography followed by two or more nights of portable monitoring with a type III[2] recording device. The authors examined the night to night variability of the AHI_{PM} (REI[3]) and found that the milder disease spectrum in 42 patients (AHI_{PSG} < 15/h) was associated with significantly greater variability in the home than the moderate-to-severe groups.

Both the AHI_{PSG} and the REI (AHI_{PM}) measure sleep apnea frequency, albeit somewhat differently. The AHI_{PSG} hypopnea definition uses arousals, while the type III devices in common use throughout the world rely solely on oxygen desaturation. The PSG reports the AHI for total sleep time while the REI uses monitoring time, so that comparisons between the two will always be inexact. The practice of defining disease severity solely based upon frequency of measured events is now standard but creates an imperfect classification. This issue is most apparent in those individuals within the mild category. Is someone with an REI of 6 who crashes a truck into a wall "mild"? Does someone with poor quality sleep with an REI of 7 on one of three nights have a disease requiring treatment? The findings of the Prasad paper suggest one night is not enough in milder patients when testing in the home.

Home sleep apnea testing (HAST) is in use throughout the world and has been in use in the United States for 23 years.[4] This year, in the US, well over a hundred thousand sleep apnea studies will be done in the home. Clearly these tests are very useful in the identification of those in the moderate to severe category and, if done correctly, I believe they will be very useful in evaluating those with milder disease as well. Some patients within that milder category will benefit from identification and treatment.[5–6] We need more information and research to understand who those individuals are and to identify subsets of mild patients who may or may not benefit from therapies. The difficult issue is that the only predictors of a mild REI in Prasad's paper were an AHI_{PSG} and the lack of comorbidities. Practically speaking, any patient therefore given a HSAT as the primary diagnostic tool is at risk of resulting in a mild REI. I suggest therefore that in further studies and in clinical practice all HSAT should be done for more than one night.

Multiple night testing with HSAT, like the gruel in Oliver's workhouse, is rather inexpensive. Obtaining more than one night is quite simple and inexpensive if done *a priori* rather than repeating a one-night test over and over. By planning to routinely acquire multiple nights of data, we can efficiently adjust for the night-to-night variability these patients show and reduce the risk of false negatives. The incremental cost of additional nights is much less than repeating a polysomnogram, as is recommended if the first night is negative.[7] More nights in the home will provide better answers for little extra cost.

More research is needed of the evaluation in the home and treatment of milder sleep apnea patients. Do patients who test in the milder REI range in each of three nights differ from those who are only positive for one to two nights? We need larger databases to capture the data in the hundreds of thousands of patients who will be studied in the near future, as previous studies on night-to-night variability have been plagued by low sample size. Finally, I would implore investigators to report these nights as separate events and not as a mean REI over several nights as was done in the Prasad paper. In the sleep center, if a patient returns for a repeat positive study after a negative test due to first-night effect, one would not average the AHIs from the two nights, so let us *not* report average values. Prasad et al. have shown us that not every night is the same. Our ability to manage patients with mild sleep apnea will be greatly enhanced if we take advantage of the opportunity afforded to us by multi-night HSAT.

CITATION

Coppola MP. "Please, sir, I want some more." *J Clin Sleep Med* 2016;12(6):787–788.

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DISCLOSURE STATEMENT

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