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Case Study: Adjusting STOP-BANG Screening Criteria for Minority Ethnic Groups

Announcer:
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Dr. Finch:
Hello, my name is Dr. Christina Finch, and I'm at the University of California San Diego where I'm a Sleep Medicine Physician and on the faculty. Today we're going to be reviewing a case study where adjusting the STOP-BANG screening criteria for minority ethnic groups is important.

So in this case study we have a 65-year-old, Asian female with a BMI of 33. Her neck circumference is 38, 15 inches, and she presents to her PCP's office with complaints of fatigue. As part of her thorough workup, the STOP-BANG questionnaire is completed and found to be negative. After a year of ongoing fatigue, despite negative workup, she is finally referred to sleep medicine at her daughter's request after concerning overnight breathing was noted during a recent visit. She is diagnosed with severe sleep apnea, and symptoms greatly improved following initiation of CPAP. What contributed to this patient's delay in diagnosis?

So this is the STOP-BANG questionnaire, generally a very good tool for quickly evaluating any concerns for possible sleep apnea. So the subjective history, the STOP, snoring, tiredness, observed apneas, and high blood pressure gets you the STOP. And then the objective findings for the BANG, BMI greater than 35, age greater than 50 years, neck circumference greater than 40 centimeters or 16 inches, and then male gender. And this is on a yes/no system and a score of 3 or greater has high sensitivity for detecting sleep apnea with 0 to 2 low risk, and 3 to 4 intermediate risk, and 5 to 8 considered high risk. So for our patient, completing this questionnaire on MDCalc gave us the score of 2, which puts her in the low category.

So the initial STOP-BANG questionnaire cutoff values were defined based on a Caucasian population. And our patient is Asian, so this might not necessarily fit for her. Different cutoff values in different ethnicities, including African Americans could produce different screening outcomes and thus potentially miss the diagnosis of sleep apnea.

So for neck circumference in particular, there was a recent retrospective analysis completed where they used PSG, so the overnight sleep studies for testing, and they found that the optimal neck circumference predictive of sleep apnea was found to be 39 in males and 35 centimeters in females. So the conclusion that they determined was for males, for Asian males okay to continue with the current cutoff of 40 centimeters, but for Asian females, it would be most appropriate to lower the screening cut off to about 35 centimeters.

And then for BMI, similarly, there have been studies done where different BMI cutoffs have been determined most appropriate for different ethnicities. So in this study, with four ethnic groups evaluated, Chinese, Indian, Malay and Caucasian, they determined that for the Chinese and Indian patients, a lower BMI threshold of 27.5 was most appropriate, while maintaining the current cutoff of 35 for Caucasian and Malay patients was recommended.

And then for gender, so prior to menopause, men have a higher risk of sleep apnea. But after menopause men and women actually have an equal risk. So in the questionnaire - from the STOP-BANG questionnaire, gives females 0 points added regardless of age. This

could potentially underestimate the sleep apnea risk for older women.

So in conclusion, it's very important to use a STOP-BANG questionnaire but also taking in nuances, including minority status or gender differences can be really important not to delay diagnosis or treatment. For example, in this patient, initially, just based on the current STOP-BANG she had a score total of 2, placing her at low risk. But when we took in some of those more nuanced changes that we just discussed, like BMI, age, neck circumference specific for her, she actually had a high-risk score of 5.

So thank you so much for joining me for this case report.

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