Case Vignette: OSA in Pregnancy

Presenting Complaints

A 35-year-old Black Hispanic woman, gravida 5, para 1, with an estimated gestational age (EGA) of 33 weeks presented to her family doctor's clinic for a routine checkup. Prior to a hand-off to an OB/GYN around 34-36 weeks, her doctor wanted to revisit her concern about ongoing snoring, an issue that has persisted since her 2nd trimester.

Past History

Her past medical history was significant for depression. Social history was negative for the use of recreational drugs, alcohol, or tobacco. At week 13, when she first complained of loud snoring. She had a BMI of 31.2 and a neck circumference of 37.0 cm. She also underwent screening questionnaires (a Stop-BANG score of 3 and an ESS score of 6) and an in-home sleep apnea testing (HSAT) using a validated in-home level III recording device. Representative epochs showed no apparent apneas or hypopneas, no evidence of desaturation and an apnea-hypopnea Index (AHI) of 3.3 which did not meet the criteria for OSA. Consequently, no treatment was offered at that time. She was recommended to practice good sleep hygiene, avoid sleeping on her back and watch her weight gain throughout the rest of her pregnancy.

Physical Exam

- BMI- 36.4 (*an increase of 16.6%*)
- Seated neck circumference: 38.0 cm (*an increase of 2.7%*)
- BP- 136/86 mmHg

Testing

The physician asked her to complete both the STOP-Bang and Epworth Sleepiness Questionnaire to assess her current status.

Do you snore loudly? Louder than talking or loud enough to be heard through closed doors	No 0	**Yes +1**
Do you often feel tired, fatigued, or sleepy during the daytime?	No 0	**Yes +1**
Has anyone observed you stop breathing during sleep?	No 0	**Yes +1**
Do you have (or are you being treated for) high blood pressure?	**No 0**	Yes +1

Objective measures:

| BMI | ≤35 kg/m² 0 |
| | **>35 kg/m² +1** |

| Age | **≤50 years 0** |
| | >50 years +1 |

| Neck circumference | **≤40 cm 0** | >40 cm +1 |

| Gender | **Female 0** | Male +1 |

Figure 1. Results of STOP-Bang Questionnaire

The patient responded with a "yes" to 3 out of the 4 STOP questions and with her BMI > 35kg/m2 , she has a total score of 4, consistent with an intermediate risk for OSA. [about the STOP-Bang].

Would never doze	Slight chance of dozing	Moderate chance of dozing	High chance of dozing	
○	○	●	○	Sitting and reading
○	○	●	○	Watching TV
○	○	●	○	Sitting inactive in a public place (e.g. cinema or in a meeting)
○	●	○	○	Being in a car for an hour as a passenger (without a break)
○	○	●	○	Lying down to rest in the afternoon (when possible)
●	○	○	○	Sitting and chatting to someone
○	○	●	○	Sitting quietly after lunch (not having had alcohol)
●	○	○	○	In a car when you stop in traffic for a few minutes

Calculate Score

Your Score

11

Figure 2. Results of Epworth Sleepiness Score

The ESS subjectively assesses excessive daytime sleepiness by asking patients to rate their chance of dozing off from 0 (would never doze) to 3 (high chance of dozing) for 8 commonly encountered scenarios, with a total maximal score of 24. A score in the range of 11-12 is interpreted as Mild Excessive Daytime Sleepiness [About the ESS]

Test results:
The STOP-Bang questionnaire generated a score of 4 (Figure 1) and ESS score generated was 11/24 (Figure 2).

The physician was aware that HSAT is emerging as a reliable, convenient, and cost-effective method of screening high-risk patients for OSA, and has been used in a number of studies of pregnant women. A third-trimester in-home sleep apnea test was conducted. The results revealed an AHI of 69.1, an oxygen desaturation index (ODI) of 48.4 and nadir oxygen

saturation of 63% . In addition, there were representative epochs showing recurrent obstructive events and desaturation.

Discussion of Treatment Plan

A sleep physician consultation was arranged. Based on her overall results, her current pregnancy status and concern over treatment adherence, the patient was offered auto-titrating continuous positive airway pressure therapy (Auto-CPAP).

Outcome of Case

Seven weeks later, the patient delivered a male infant at 40 weeks and 4 days, by spontaneous vaginal delivery. Although OSA symptoms may improve postpartum, it may not resolve after delivery and OSA in pregnancy may increase the risk of maternal morbidities, even beyond the gestational period. The patient continued using her AutoPAP treatment and planned on discussing the next steps at the next follow-up appointment with the sleep physician.

Teaching Points

Pregnancy is a risk factor for developing OSA and OSA is associated with multiple adverse pregnancy outcomes and maternal morbidities, even beyond the gestational period. Despite the high prevalence of OSA and its impact on perinatal outcomes, there are no standard methods and optimal timing to screen for this disorder.

This case report highlights the complexity of SDB in pregnancy. This was a case of severe OSA in pregnancy, diagnosed only in the third trimester, while first-trimester AHI was less than 5 events/h, despite the presence of an OSA phenotype and high scores on screening questionnaires since the beginning of pregnancy. This suggests that either SDB was present in the first trimester but was not clearly identified by conventional criteria or that pregnancy truly triggered the de novo development of severe SDB. Screening for SDB early in pregnancy may miss many cases, while screening late in pregnancy may miss a potentially key therapeutic window, especially if a goal of therapy includes the prevention of pregnancy-specific complications.

Auto titrating CPAP is typically considered for patients in whom large weight fluctuations are anticipated, such as pregnant patients or those undergoing bariatric surgery. It is a more sophisticated device providing an alternative to traditional CPAP. While CPAP delivers a continuous fixed pressure during the entire treatment session, Auto-CPAP automatically and continuously adjusts the delivered pressure (within a maximal and minimal value, set by the operator) in order to maintain upper airway patency following changes in airflow resistance.

Compliance with Auto-CPAP is slightly higher compared with fixed CPAP, whereas the two modalities produce similar benefits in terms of diurnal symptoms and sleep measures.

Additional Reading

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