

# More Adverse Outcomes in Severe Sleep Apnea

BY DIANA MAHONEY

FROM THE ANNUAL MEETING OF THE ASSOCIATED PROFESSIONAL SLEEP SOCIETIES.

MINNEAPOLIS – Women with sleep-disordered breathing have an increased likelihood of adverse pregnancy outcomes, but it is unclear whether the heightened risk can be attributed primarily to the breathing disorder or to obesity, reported lead investigator Dr. Francesca L. Facco.

quality of ventilation during sleep in pregnancy and adverse obstetrical outcomes, which is what we sought to do in this investigation” she said at the meeting.

Toward this end, Dr. Facco and her colleagues conducted a retrospective cohort study, using ICD-9 codes to identify women who had a delivery and an in-laboratory polysomnogram at their institution between January 2000 and June 2009. They reviewed the medical charts of 150 patients and abstracted data on demographics, sleep study results, and pregnancy outcomes. “In women with more than one pregnancy, we looked at the first pregnancy with outcome information,” she explained.

The study’s primary outcome was adverse pregnancy outcome, which was defined as pregnancy-induced hypertension, gestational diabetes, and early preterm birth (at or before

## VITALS

**Major Finding:** In the no, mild, and moderate to severe sleep disordered breathing groups, the composite adverse pregnancy outcome rates were 18.1%, 23.5%, and 38.5%, respectively.

**Data Source:** A retrospective cohort study to assess the association between sleep-disordered breathing and adverse pregnancy outcomes in 150 women who had a delivery and an in-laboratory polysomnogram between January 2000 and June 2009.

**Disclosures:** Dr. Facco said she had no relevant financial disclosures.

Sleep disordered breathing (SDB) occurs in approximately 2% of the female population and has been linked to cardiovascular and metabolic morbidities and mortality in nonpregnant populations, said Dr. Facco of the department of ob.gyn. at Northwestern University in Chicago. “There is some evidence that pregnancy may precipitate or exacerbate the condition, and that there may be a relationship between intrauterine fetal growth retardation and maternal preeclampsia.” Unfortunately, “few studies have examined the relationship between abnormal respiratory patterns or

34 weeks’ gestation), Dr. Facco said.

The apnea-hypopnea index (AHI) was used to classify the presence and degree of SDB, with an AHI of fewer than 5 breathing pauses per hour indicating no SDB, an AHI of 5-14.9 pauses per hour indicating mild to moderate SDB, and an AHI of 15 or more pauses per hour suggesting a severe condition, she said. The associations between SDB and adverse pregnancy outcomes were evaluated using a Chi-square test for trend.

Of the 150 women included in the investigation, 61% were nulliparous at the time of their first documented delivery



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at the study hospital, 72% had undergone a polysomnogram within 3 years of their delivery, and 86.7% were overweight or obese (defined as a body mass index of 25 kg/m<sup>2</sup> or greater) at the time of delivery, Dr. Facco reported.

An analysis of the findings demonstrated a significant association between SDB and adverse pregnancy outcome.

“The incidence of adverse pregnancy outcomes was highest in women with severe sleep apnea,” she said, noting that the increased prevalence was principally driven by a higher incidence of gestational diabetes and early preterm birth.

In the no, mild, and moderate to severe SDB groups, respectively, researchers found the following:

► The composite adverse pregnancy outcome rates were 18.1%, 23.5%, and 38.5%.

► The gestational diabetes rates were 0%, 5.9%, and 11.5%.

► The preterm birth rates were 4.7%, 5.9%, and 15.4%.

► The pregnancy-induced hypertension rates were 16.9%, 17.6%, and 15.4%.

“Gestational diabetes has been independently associated with maternal obesity, as has preterm birth and low birth weight,” Dr. Facco said in an interview. “In this population, nearly 87% of the women who had [SDB] were also obese, making it an obvious confounding factor.”

Further prospective studies are needed to assess the independent impact of SDB on maternal and neonatal health, and if the independent association is confirmed, additional studies on the role of treatment in pregnancy would be needed, Dr. Facco said. ■

## Two Questions Best Surveys for Sleep Apnea in Pregnancy

BY DIANA MAHONEY

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MINNEAPOLIS – A two-question screening tool for sleep apnea yielded more accurate results than did standard screening tools, a study has shown.

**‘Using prepregnancy body mass index and self-reported snoring had a much better sensitivity than the conventional methods, without sacrificing much specificity.’**

“Using prepregnancy body mass index and self-reported snoring had a much better sensitivity than the conventional methods, without sacrificing much specificity,” Dr. Francesca L. Facco reported at the meeting.

In a cohort of pregnant women who completed a sleep survey and participated in an overnight sleep evaluation, the two-question screening approach yielded more accurate results than did standard screening tools, including the Berlin Questionnaire (BQ) and the Epworth Sleepiness Scale (ESS), she said.

To compare the screening approaches, Dr. Facco of the department of ob.gyn. at Northwestern University, Chicago, and her colleagues recruited 86 high-risk pregnant women, including those with chronic hypertension, pregestational diabetes, obesity, or a prior history of preeclampsia, to complete the sleep survey, which consisted of the BQ and ESS measures.

The women also underwent an overnight sleep evaluation

## VITALS

**Major Finding:** In screening for sleep apnea via prepregnancy BMI plus self-reported snoring, sensitivity was 74% and specificity was 59%, compared with 35% and 69% for standard screening measures.

**Data Source:** A prospective study comparing the accuracy of standard sleep apnea screening measures to a two-question approach based on prepregnancy BMI and self-reported snoring in 86 women with high-risk pregnancies.

**Disclosures:** Dr. Facco reported having no financial conflicts.

using Itamar Medical’s WatchPAT100 (WP100), a wrist-mounted, ambulatory device designed to diagnose sleep apnea, Dr. Facco said.

For this study, sleep apnea was defined as an apnea-hypopnea index score of five or more episodes of disturbed sleep per hour.

Patients’ prepregnancy BMI and self-reporting snoring status were recorded as well.

“Patients with a prepregnancy BMI of 25 [kg/m<sup>2</sup>] or higher who also reported snoring were considered to be screen posi-

tive” for apnea, Dr. Facco said.

The investigators assessed the performance of the BQ, ESS, and two-question measures relative to the data acquired from the WP100 devices using receiver operating characteristic (ROC) curves, and determined that the two-question approach performed better than the BQ alone, the BQ and ESS combined, and the null hypothesis, according to Dr. Facco.

The sensitivity of the combined BQ and ESS was 35% and the specificity was 69%, compared with 74% and 59%,

respectively, for the two-question approach. “The results suggest that standard screening tools for sleep apnea, which have a high sensitivity and specificity in nonpregnant individuals, are inadequate for the assessment of sleep apnea in pregnancy,” Dr. Facco said.

Modifications that take into account the predictive value of prepregnancy BMI and snoring are warranted, she said, stressing that additional studies are needed to design and test the most appropriate measure for sleep apnea screening in pregnancy.

Because sleep apnea may be associated with complications during pregnancy and with adverse pregnancy outcomes, screening for the disorder should be considered for all pregnant women, and particularly those who are considered to be at high risk, Dr. Facco noted. ■