

Metabolic Disease in Pregnancy and Obstructive Sleep Apnea: A Recipe for Adverse Pregnancy Outcome

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Introduction: To evaluate impact of gestational weight gain, glycemic control, hypertension control, and positive obstructive sleep apnea (OSA) screen on delivery indications and pregnancy complications in women with pregnancies medically complicated by hypertension, diabetes, and obesity.

Methods: This is a descriptive study of pregnant women referred to Wake Forest University Perinatology with hypertension, diabetes, and obesity. Patients were assessed routinely during pregnancy, at delivery, and 6 weeks postpartum. OSA screen, ASA status, delivery mode, delivery indication, and postpartum wound healing were tracked. Patients were subsequently stratified into groups by ASA status, OSA screen, gestational weight gain categories (eg, inadequate, adequate, and excessive by IOM guidelines). Univariate and multivariate analyses were used as appropriate to assess impact of factors on outcomes.

Results: 142 pregnant women with pregnancies complicated by hypertension, diabetes, and hypertension had complete data on ASA status, weight gain, and delivery outcome. Mean ASA score was 2.29. BMI, gestational age, gravity, parity, DM, and HTN were not different across groups. 51 were assessed for OSA. 7/51 (14%) patients screened positive for OSA. 107/142 (75%) did not adhere to IOM gestational weight gain guidelines, of which 82/142 (58%) gained excess weight. 29/142 (20%) had indicated C-sections. 47/142 (33%) had indicated IOLs. Excess weight gain was associated with higher ASA status immediately prior to delivery ($p=0.02$). Odds of indicated delivery increased with escalating ASA category (OR 3.4, CI 1.6-6.9). Higher ASA status conferred higher odds of indicated delivery (OR 3.4, CI 1.6-6.9), gestational HTN (GHTN) (OR 5.4 CI 1.2-20.4), or preeclampsia (OR=7.1 CI 1.4-38.0). Intake BMI was associated with delivering by cesarean ($p=0.02$); this persisted in a regression model controlling for parity, excess weight gain and delivery BMI. Screening OSA+ was associated with wound dehiscence postpartum (7/7 [100%] OSA+ vs. 2/44 [5%] OSA-; $p<0.01$).

Conclusions: Women with pregnancies complicated by diabetes, hypertension and obesity had more adverse outcomes when gaining excess weight. As a result of poorer health status, these women had higher ASA categorization at delivery. These factors lead to higher rates of indicated delivery, GHTN, and preeclampsia. Women screening positive for OSA had poorer wound healing, potentially due to chronic intermittent hypoxia. As increased weight contributes to poorer ASA category, proper weight management, glycemic control and hypertension control during pregnancy could improve pregnancy outcomes.