Sleep-disordered Breathing during Pregnancy: A Multiple Pregnancy Cohort Study

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Background: Sleep-disordered breathing (SDB) is prevalent during pregnancy. Maternal physiological changes may aggravate or worsen the pre-existing SDB. Existing data showed that SDB is associated with poor maternal and fetal outcomes in singleton pregnancy. But little is known about the prevalence/incidence of SDB and consequence multiple pregnancies.

Objective: To evaluate prevalence/incidence of SDB in multiple pregnancies and consequence on pregnancy outcomes.

Methods: A prospective cohort study was performed in women with multiple pregnancies in Ramathibodi Hospital. Participants were recruited to complete sleep questionnaire and underwent objective sleep test with WatchPAT200™ during early pregnancy (gestational age GA < 20 weeks) and 3rd trimester (GA 28-32 weeks). Cut-off diagnosis of SDB was based on respiratory disturbance index (RDI) ≥ 5. Maternal and newborn records were reviewed.

Results: The study group included 32 women. The prevalence of SDB in multiple pregnancies is 19/32 (59%) during early pregnancy. There was no difference among SDB and non-SDB groups with regard to maternal age (32.9 ± 6.1 and 32.2 ± 5.5 years) and body mass index (BMI) (24.4 ± 4.2 and 22.7 ± 4.3 kg/m2). Polysomnographic results during early pregnancy showed AHI (11.03 vs 0.65, p < 0.01), RDI (9.35 vs 3.08, p < 0.01), and minimal O2 desaturation (92.53 vs 94.46, p = 0.42) in SDB and non-SDB groups. Only 17 subjects proceeded to perform 2nd sleep test during 3rd trimester and showed that 12 (70%) had SDB. All subjects with SDB during early pregnancy (n = 19) continued to have SDB during 3rd trimester with increasing RDI (9.35 to 11.07). Incidence of pregnancy onset SDB was 2/7(28%). Overall AHI (1.95 to 4.59) and RDI (6.80 to 8.18) increased as pregnancy progression. Abortion rate were 3/19 (16%) and 2/13 (15%) in SDB and non-SDB groups. Infants born to mothers with SDB had lower birth weights (1950 ± 600 vs 2850 ± 76 g, P = 0.03 in twin A and 1869 ± 610 vs 2727 ± 85 g, P = 0.03 in twin B), with a trend of lower GA at delivery (240.5 ± 7.7 vs 263 ± 3.5 days, P = 0.19). However, 1-minute Apgar scores (6.9 ± 0.7 vs 8.3 ± 0.3, P = 0.34 in twin A, 6.9 ± 0.6 vs 8 ± 0, P = 0.43 in twin B) and 5-minute Apgar scores (8.8 ± 0.4 vs 9.7 ± 0.3, P = 0.37 in twin A, 8.6 ± 0.6 vs 9.7 ± 0.3, P = 0.45 in twin B) were not different.

Conclusion: Our preliminary results suggest that SDB in multiple pregnancies is highly prevalent and seems to worsen as pregnancy progresses. In addition, pregnancy-onset SDB may occur. SDB in multiple pregnancies may be associated with low birth weight of newborns.

Keywords: Sleep-disordered breathing, Multiple pregnancy, Pregnancy outcomes