

Pre-eclampsia and nasal CPAP: part 1. Early intervention with nasal CPAP in pregnant women with risk-factors for pre-eclampsia: preliminary findings.

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Abstract:

BACKGROUND: Pre-eclampsia is a leading cause of maternal-fetal morbidity and mortality. Significant overlap exists between the risk factors for pre-eclampsia and sleep-disordered breathing. Nasal continuous positive airway pressure (CPAP) has been proposed as therapy for pre-eclampsia. This prospective, longitudinal study was designed to characterize sleep-related breathing patterns in pregnant women with pre-eclampsia risk factors, and to describe the effects of early nasal CPAP therapy in these patients. **METHODS:** Twelve pregnant women with pre-eclampsia risk factors underwent polysomnography to characterize sleep-related breathing abnormalities and baseline blood pressure determination. Patients with airflow-limitation underwent nasal CPAP titration and were treated with optimal pressures. Periodic assessments of CPAP compliance and tolerance, sleep quality, and blood pressure control were performed until delivery or pre-eclampsia onset. CPAP retitration was performed between weeks 20 and 22 of pregnancy. **RESULTS:** Mean respiratory disturbance index was 8.5 \pm 2.6 events/h of sleep, and initial nasal CPAP pressures were 5-6 cm H₂O with an increase to 6-9 cm H₂O after recalibration. All subjects with chronic hypertension maintained blood pressures below 140/90 with a mean diurnal blood pressure of 122 \pm 2.5 mmHg over 83 \pm 1.5 mmHg. Patient characteristics of obesity and prior pre-eclampsia were associated with pregnancies complicated by spontaneous abortion, premature delivery, or pre-eclampsia. **CONCLUSIONS:** Early application of nasal CPAP in pregnant women alleviated sleep-related breathing disturbances but was not sufficient to prevent negative pregnancy outcomes. Obesity and prior pre-eclampsia appeared to be important factors and were associated with the worst complications. However, nasal positive pressure may still be beneficial to decrease severity of outcomes, particularly if individualized to patient risk factors, more particularly hypertension at pregnancy onset.

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