2007 VISION GRANT: FRANCESCA FACCO, MD
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Progress Report
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I completed a small case-control study that looking at sleep-disordered breathing and preeclampsia. This study demonstrated that SDB events appear to be more prevalent among preeclampsia patients compared to normotensive controls. We presented an abstract/poster of this research at the Society of Maternal Fetal Medicine 2009 Annual Meeting (San Diego, Calif., 26-30 January 2009). I plan on writing a manuscript for publication.

In addition, I am very happy to report that thanks to the Vision Grant I was able to build my research efforts into a proposal for a Women's Reproductive Health Research (WRHR) Career Development Award. This award will allow me to come to peruse my research with 75% protected time over the next 3 years. My WRHR proposal includes my Preeclampsia Foundation Grant project which I plan to complete over the next year. I am very thankful to the Preeclampsia Foundation because the research support provided by the Foundation allowed me to submit a very competitive application for this award.

My project "Sleep Disordered Breathing and Preeclampsia: A Cohort Study" is progressing well. My collaboration with Dr. David Ouyang at Northshore University hospital is well established and we are now successfully recruiting patients at 2 sites. This has significantly accelerated our enrollment rate. As with most projects requiring prospective enrollment of human subjects, it is a slow but steady process. We are continuing to recruit at a steady pace and anticipate that an interim analysis will be ready by December of this year.

Here is the abstract of the case-control study presented at SMFM:

OBJECTIVE: To determine if sleep-disordered breathing (SDB) is more prevalent among women with preeclampsia compared to normotensive controls

STUDY DESIGN: Preeclamptic patients admitted to the hospital for observation were recruited to complete the Berlin Questionnaire for sleep apnea, and to participate in an overnight sleep evaluation with the Watch-PAT100, a wrist-mounted, ambulatory device designed to diagnose SDB. Gestational age matched controls were recruited among normotensive pregnant patients hospitalized for other obstetrical indications.

RESULTS: Ten preeclamptic patients and 11 controls were recruited. The gestational age at the time of the sleep study did not differ between the cases and controls (32.8 ± 1.0 weeks vs. 31.6 ± 0.7 weeks, P= 0.3). Preeclamptic subjects had a higher mean BMI (37.7± 3.3 vs. 29.2 ± 1.2, P=0.02). Seventy percent (7/10) of the preeclamptic subjects screened positive for sleep apnea on the Berlin Questionnaire versus none (0/11) of the controls ($p < 0.01$). Preeclamptic subjects had higher mean AHI and RDI values, and a higher prevalence of moderate to severe sleep apnea however these differences did not reach statistical significance. Preeclamptic subjects had a significantly higher mean ODI compared to controls (4.1 ± 1.8 vs. 0.3 ± 0.2, $p = .04$).

CONCLUSION: SDB events appear to be more prevalent among preeclamptic patients. Compared to controls, preeclamptic patients had a significantly greater number of nocturnal oxygen desaturations (a drop in oxygen saturation of 4% or more) per hour of sleep. Further Research is needed to determine if SDB, independent of BMI, is a significant contributing factor to preeclampsia.