New treatment may help overcome common pregnancy-related complication

September 24 2015

Preeclampsia, when a pregnant woman develops high blood pressure and protein in the urine, is one of the most common medical complications of pregnancy, and the consequences for both mother and baby can be devastating. The only way to cure preeclampsia is to deliver the baby, but now researchers propose one of the first therapeutic interventions for the condition that may allow pregnancy to safely continue. The treatment is described in a study appearing in an upcoming issue of the *Journal of the American Society of Nephrology* (*JASN*).

"Based on recent advances in the understanding of this condition, we and others are developing treatments for preeclampsia to allow women to safely prolong their pregnancy if they are suffering from very preterm preeclampsia," said lead author Ravi Thadhani, MD, MPH (Massachusetts General Hospital). "Prolonging pregnancy allows the baby to mature, markedly reducing complications." One such treatment involves removing a protein called soluble Fms-like tyrosine kinase-1 (sFlt-1), which alters blood vessel growth and is believed to play a role in the signs and symptoms of preeclampsia.

Dr. Thadhani and his colleagues conducted an open pilot study to evaluate the safety and effectiveness of removing sFlt-1 from the blood through a process called apheresis. During the procedure, blood is removed and passed through a column lined with a material that binds to sFlt-1 and retains it while the rest of the blood is then returned to the body. The team tested the procedure in 11 pregnant women with very preterm preeclampsia (23-32 weeks' gestation).

The treatment significantly reduced the amount of protein excreted in the urine and transiently reduced women's blood pressure. Also, pregnancy continued an average of 8 days and 15 days in women treated once and multiple times, respectively, compared with 3 days in 22 untreated women with preeclampsia. Compared with infants born prematurely to untreated women with and without preeclampsia, no major adverse effects of apheresis were observed.

"Our pilot study suggested we can safely prolong pregnancy when we target removal of sFlt-1 in women with severe preterm preeclampsia, and we hope this is confirmed in randomized trials" said Dr. Thadhani.

In an accompanying editorial, Thomas Easterling, MD (University of Washington, Seattle) questioned whether this modest but significant reduction in sFlt-1 concentration is biologically significant. "Achieving an additional week of gestational age in a premature infant at the gestational ages studied is important and, given the cost of care in the neonatal intensive care unit, probably cost-effective," he wrote. He noted that apheresis may be an important component of a broader intervention of synergistic agents, but a randomized trial, which will be a challenge to design and carry out, is needed.

More information: The article, entitled "Removal of sFlt-1 by Dextran Sulfate Apheresis in Preeclampsia," will appear online at jasn.asnjournals.org/ on September 24, 2015.

Provided by American Society of Nephrology