New research on pre-eclampsia in mice may have important implications for humans

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In a new March of Dimes-funded study of pre-eclampsia, a serious and potentially deadly disorder that affects about 5 percent of pregnancies, researchers have found results in mice that may have important implications for diagnosis and treatment in humans.

Yang Xia, M.D., Ph.D., and Rodney E. Kellems, Ph.D., Department of Biochemistry and Molecular Biology; and Susan M. Ramin, M.D., Department of Obstetrics, Gynecology and Reproductive Science, all at the University of Texas-Houston Medical School, and colleagues report today in the journal *Nature Medicine* that they induced pre-eclampsia in mice by injecting them with certain human autoantibodies that have been found in women with pre-eclampsia. The mice showed multiple features of the disorder, including dangerously high blood pressure, protein in the urine, and placental abnormalities. Then the researchers gave the mice a substance that blocks the action of the autoantibodies; this prevented the development of pre-eclampsia.

The investigators say they demonstrated an important pathway of pre-eclampsia as well as a potential new approach to diagnosis and treatment.

Pre-eclampsia may require pre-term delivery (birth before 37 completed weeks gestation) to prevent severe complications to mother and baby, because delivery is the only cure for the disorder.

Preterm birth is a serious and costly health problem and the leading cause of death in the first month of life. More than a half million babies

– one out of every eight – are born too soon each year in the United States. Babies who survive face the risk of serious life-long health problems including learning disabilities, cerebral palsy, blindness, hearing loss, and other chronic conditions including asthma. Even infants born just a few weeks too soon have a greater risk of breathing problems, feeding difficulties, temperature instability (hypothermia), jaundice and delayed brain development.

The March of Dimes also is helping to support a large World Health Organization study to evaluate whether a new screening test is in fact a reliable predictor of the development of pre-eclampsia, as well as the feasibility of doing testing in developing nations where pre-eclampsia causes a significant number of deaths among pregnant women and babies.

Source: March of Dimes Foundation