

RESEARCH DIRECTIONS

Early warning of preeclampsia

Professor Annemarie Hennessy and Dr Angela Makris, from the School of Medicine along with Professor William Price from the School of Science and Health, are investigating blood pressure control in preeclampsia. This National Health and Medical Research Council project explores links between an expectant mother's immune responses and the health of her placenta, and her high blood pressure.

'Preeclampsia or "toxaemia" is high blood pressure in pregnancy that can result in renal, liver, brain and cardiac dysfunction and it is the most common cause of maternal mortality and premature birth,' says Professor Hennessy. 'We need to greatly enhance our understanding of the underlying mechanisms of preeclampsia and create more effective treatments for the mother and baby.'

The factors that are thought to lead to preeclampsia are pro-inflammatory influences, and cardiovascular risk factors such as high blood pressure and high cholesterol which affect the placenta and its blood flow. Studies in large animals have suggested a potential pathway linking the sequence of abnormalities of immune system regulation and the way blood vessels react but the mechanisms have not been identified.

This project will exploit technological advances in imaging to try to identify those mechanisms by being able to examine tiny mice. MRI, rather than more limited ultrasound, will measure subtle changes in the blood flow of pregnant mice. Blood pressure measurements and blood, urine and tissue samples will be taken. The effect of a placental growth agent will be tested for its ability to reverse preeclampsia. Preventive treatment with good cholesterol will also be used to protect the animals from preeclampsia.



At the moment the only "cure" in cases of preeclampsia is the urgent delivery of the baby and emergency care for the mother. Results from this three-year project may lead to the development of screening in early pregnancy.

Project Title: Physiological mechanisms of experimental preeclampsia

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