

Genetics point to serious pregnancy complication

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New research at the University of Adelaide has revealed a genetic link in pregnant mums - and their male partners - to pre-eclampsia, a life-threatening complication during pregnancy.

Pre-eclampsia involves [high blood pressure](#) and fluid retention and can cause damage to the kidneys and liver. About 7% of pregnancies are affected by pre-eclampsia.

In a paper now online in the journal *Placenta* ahead of print publication, the researchers say they have found a genetic variant involving the AGT2R gene, which may predispose women to pre-eclampsia.

However, the genetic variant is only associated with pre-eclampsia when the pregnant mother is overweight or obese.

"Being able to predict which women are at risk of pre-eclampsia is a very important goal in obstetrics," says Professor Claire Roberts from the University of Adelaide's Robinson Institute.

Professor Roberts, Dr Ang Zhou and Professor Gus Dekker from the Robinson Institute studied data from the SCOPE study, involving more than 2000 women and their partners in Adelaide, Australia and Auckland, New Zealand.

Women who developed pre-eclampsia who were also overweight or obese were twice as likely to carry the AGT2R [gene variant](#) than the

common form of the gene. The [male partners](#) of women with pre-eclampsia were also twice as likely to carry the variant gene. Their babies were three times more likely to carry the variant.

"This is a condition that can run in families," Professor Roberts says. "With both the mother and the father passing on their variant genes to their children, this places the child at greater risk of parenting a pre-eclamptic pregnancy."

Professor Roberts says the genetic variant is linked with restricted blood flow to the placenta.

"Impaired blood flow in the [uterine artery](#) is characterized by a 'notching effect' that appears on a [Doppler ultrasound](#) at 20 weeks gestation. Uterine artery notching has previously been associated with pre-eclampsia, and this restricted blood flow is due to impaired placental development," Professor Roberts says.

The researchers say the genetic variant has only a subtle effect in women of normal weight, but in overweight and obese women it appears to independently contribute to the risk of pre-eclampsia.

"Understanding this association could help to predict which women are likely to develop pre-eclampsia," Professor Roberts says.

"However, it also helps to reinforce the message that a normal weight prior to pregnancy will lower the risk of serious complications - being overweight or obese increases the risk of complications."

Provided by University of Adelaide

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