

## DIABETES

## Falling insulin requirements — a red flag for pre-eclampsia

Women with pre-existing diabetes mellitus whose insulin requirements fall during pregnancy have a markedly increased risk of developing pre-eclampsia and other adverse obstetric outcomes, according to new research. As the fall in insulin requirement seems to precede the onset of pre-eclampsia, clinicians should be alert to this important clinical sign of underlying placental dysfunction.

“The insulin requirements of most women with diabetes mellitus increase during pregnancy; however, it is not uncommon for women to have a paradoxical drop in their insulin requirements in late

pregnancy,” explains study lead Suja Padmanabhan. In a previous retrospective pilot study, Padmanabhan and her team showed that women with falling insulin requirements have an increased risk of pre-eclampsia, small for gestational age babies and admission to the neonatal intensive care unit. The current prospective study aimed to verify those findings.

The multicentre cohort study included 158 women — 41 with type 1 diabetes mellitus (T1DM) and 117 with T2DM. Levels of maternal biomarkers were measured at 14, 24, 30 and 36 weeks of gestation; the primary outcome was a composite of adverse

clinical outcomes associated with placental dysfunction (pre-eclampsia, small for gestational age, stillbirth, premature delivery and placental abruption). Falling insulin requirements of  $\geq 15\%$  from the peak daily dose after 20 weeks gestation were identified in 32 women (predominantly those with T1DM) and were associated with an increased risk of the primary outcome (OR 4.38), driven largely by an increased risk of pre-eclampsia (OR 6.76). Moreover, falling insulin requirements of  $\geq 15\%$  were also associated with altered levels of placental hormones involved in angiogenesis, which provides further support for a link to placental dysfunction.

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