

Size of a woman's uterus can predict whether she is at risk of having very premature twins after IVF

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Using ultrasound to measure the height of a woman's uterus is a good way to predict whether or not she is at risk of having babies born prematurely if she becomes pregnant with twins after IVF, according to new research presented at the 24th annual meeting of the European Society of Human Reproduction and Embryology in Barcelona today.

Dr Raphaël Hirt, a Fellow in the Division of Reproductive Medicine at the Hôpital Antoine Bécère, Clamart, Paris (France) headed by Professor Renato Fanchin, told the conference that the finding would help medical professionals and women make objective decisions about how many embryos should be transferred in one IVF attempt.

"Twin pregnancies account for between a quarter and a third of pregnancies obtained during IVF, and eight per cent of them are complicated by the babies being born extremely premature, leading to medical complications and sometimes foetal mortality," he said. "For this reason, single embryo transfer is promoted as the best way of avoiding twin pregnancies, but, in some cases, this can alter the overall likelihood of pregnancy. An evaluation of a woman's individual risk of perinatal adverse outcomes from a twin pregnancy may help to select those women who have a lower risk of having twins born severely prematurely and who could consider a double embryo transfer if that is what they want."

Dr Hirt and Prof Fanchin knew that women who already had children were less likely to give birth prematurely, probably because the uterine cavity had been distended by previous pregnancies. They decided to see whether the height of the uterus, as measured by transvaginal ultrasound (a process called hysterosonometry or HSM) could predict the outcome of twin pregnancies after IVF.

They used HSM to measure the distance between the top of the uterus (the fundus) and the external opening of the cervix (cervical os) in 79 women, aged 21-39, who were attending their clinics for fertility treatment. After successful IVF treatment they followed the women to record gestational age at delivery, prevalence of severe prematurity (defined as delivery before 32 weeks) and foetal mortality.

They divided the women up into three groups based on the 30th and 70th centile of the HSM results: group 1 (24 women with a uterus height less than 63mm), group 2 (33 women with an average size uterus of between 64-70mm) and group 3 (22 women with a uterus height greater than 70mm).

They found that women with the smallest uteri (group 1) were significantly more likely to have babies born severely premature, with an increased number of foetal deaths, compared to the other two groups. The average gestational age of babies in the group 1 women was 33.7 weeks (with a range of 23-38.5 weeks) compared to an average age of 37.5 weeks for the other two groups. There were seven foetal deaths in the first group compared with one in the second group and none in the third group, and six of the deaths in the first group were linked to prematurity, while the one death in the second group was not.

After adjusting for any confounding factors such as age, parity, previous premature delivery, the researchers found a clear association with HSM.

Dr Hirt said: "This is the first time that uterine length has been used to predict which women are more likely to have twins born prematurely. Our results show that HSM is a reliable and non-invasive method for predicting twin-related severe prematurity and neonatal mortality, and it can be used before conception to help with objective decision-making about the number of embryos to transfer. For women with an HSM measurement of less than 62mm, a single-embryo transfer is indicated, but in those with a longer uterine cavity, a double-embryo transfer can be considered if it is acceptable to the patients.

"Transvaginal ultrasound is a common, easy and inexpensive examination. Furthermore, it is already practiced in many fertility clinics and would not increase IVF costs. Although we suggest that further, larger studies should be conducted, we believe that even with the restricted number of patients in our study, the results are dramatically significant and HSM could be included in the criteria that clinics currently use when advising about the number of embryos to transfer."

Dr Hirt and Prof Fanchin's team will be using HSM as new criteria and will be studying whether this results in a significant decrease in foetal mortality. They are also planning to study the impact of a short uterine cavity on singleton pregnancies, to see whether it could help to identify those women who will need intensive neonatal care.

Source: European Society for Human Reproduction and Embryology

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