

Larger hospital units have lower miscarriage rates after invasive pregnancy tests

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A study of more than 64,000 pregnant women has found that miscarriage rates following amniocentesis and chorionic villus sampling (CVS) - two invasive procedures to detect chromosomal abnormalities and birth defects - were 1.4 per cent and 1.9 per cent, respectively.

The research, published in the July issue of *Ultrasound in Obstetrics and Gynecology*, also found that the number of procedures carried out by a department had a significant effect on miscarriage rates.

For example, the rates in departments carrying out fewer than 500 amniocentesis tests over the 11-year period were 2.2 times higher than those performing 1,500 or more over the same timescale. Similarly, the miscarriage risk for CVS was 1.5 times higher in departments that performed 500 to 1,000 procedures and 1001 to 1,500 procedures, compared to those carrying out more than 1,500 procedures.

The research team from Copenhagen University Hospital analysed the results of all amniocentesis and CVS tests carried out on singleton pregnancies in Denmark between 1996 and 2006. Just over 51 per cent of the 64,207 women underwent an amniocentesis test, with the remainder receiving CVS testing.

"In Denmark all citizens have a unique personal identification number which enables us to link individuals between different health registries" explains lead author Professor Ann Tabor from the Department of Fetal Medicine at the University. "This made it possible for us to compare the

chromosome analysis reports lodged with the Danish Central Cytogenic Registry and cross-reference them to the deliveries, miscarriages and terminations in the National Registry of Patients."

The post-procedural miscarriage rate was defined as spontaneous miscarriage or intrauterine death before 24 weeks' gestation.

The study showed that the number of amniocentesis tests fell over the 11-year study period, from 55 per cent to 31 per cent of invasive procedures, while CVS tests rose from 45 per cent to 69 per cent. Professor Tabor says that the increase in CVS tests is because women are now offered a first trimester risk assessment and this means they are screened earlier in their pregnancy. Amniocentesis tests are normally carried out after 15 weeks into the pregnancy, while CVS tests can be carried out after 11 weeks.

The study was unable to assess whether amniocentesis was a lower risk procedure than CVS, because the background risk of miscarriage falls with advancing pregnancy. As CVS is done earlier in the pregnancy the total rate of miscarriage is higher after CVS than after amniocentesis, but previous studies have shown that the miscarriage rates due to the two procedures are similar.

"We attempted to assess the miscarriage rate in the 633,308 women not undergoing an invasive procedure, in order to provide a background rate with which to compare the miscarriage rates following invasive tests" says Professor Tabor. "It was, however, not possible to define a common starting point from which all pregnancies, without selection, could be compared with an ultrasonically verified live pregnancy.

"So our research provides the miscarriage rates after an invasive procedure, but we cannot say what the estimated rate of miscarriage would have been in patients not having invasive procedures.

"Having said that, the very clear variations in miscarriage rates between units with different levels of expertise demonstrate that the invasive procedures play a role in [miscarriage](#) rates."

The authors are keen to stress that pregnant women should be aware of the risks of these invasive procedures, but add that it is also very important that they consider appropriate screening and risk assessment, especially if their medical history or other factors indicate an elevated risk of abnormalities.

"We would urge anyone undergoing either of these tests to discuss them fully with the healthcare staff looking after them, so that they can weigh up the risks and make an informed choice" says Professor Tabor.

More information: Fetal loss rate after chorionic villus sampling and amniocentesis: an 11-year national registry study. Tabor et al. *Ultrasound in Obstetrics & Gynecology*. 34 p19-24. (July 2009).

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