

MRIs in first trimester of pregnancy not associated with increased risk to fetus

September 6 2016



Photo by Bianca de Blok.

In an analysis that included more than 1.4 million births, exposure to magnetic resonance imaging (MRI) during the first trimester of pregnancy compared with nonexposure was not associated with increased risk of harm to the fetus or in early childhood, although gadolinium MRI at any time during pregnancy was associated with an increased risk of a broad set of rheumatological, inflammatory, or skin conditions and, possibly, for stillbirth or neonatal death, according to a study appearing in the September 6 issue of *JAMA*.

Concern has been expressed about the safety of MRI exposure in the

first trimester of pregnancy due to the heating of sensitive tissues by radiofrequency fields and exposure to the loud acoustic environment. When indicated, MRI's diagnostic accuracy is improved with gadolinium, an intravenous contrast medium. Fetal safety of MRI during the first trimester of pregnancy or with gadolinium enhancement at any time of pregnancy is unknown.

With the use of universal health care databases in the province of Ontario, Joel G. Ray, M.D., M.Sc., F.R.C.P.C., of St. Michael's Hospital and the Institute for Clinical Evaluative Sciences, Toronto, and colleagues identified all births of more than 20 weeks from 2003-2015 to evaluate the long-term safety after exposure to MRI in the first trimester of pregnancy or to gadolinium at any time during pregnancy.

The study included 1,424,105 deliveries. In pregnancies that lasted a minimum of 21 gestational weeks, 1 in 250 had an MRI in pregnancy, including 1 in 1,200 in the first trimester and 1 in 3,000 with gadolinium contrast. Maternal MRI in the first trimester was not associated with a higher risk of stillbirth or [neonatal death](#), congenital anomalies, neoplasm, or hearing loss.

Exposure to gadolinium-enhanced MRI at any gestation was not associated with a greater risk of congenital anomalies. Although a nephrogenic systemic fibrosis-like outcome was extremely rare, gadolinium-enhanced MRI was associated with an [increased risk](#) for a non-specific outcome of any rheumatological, inflammatory or infiltrative skin condition up to age 4 years, and for stillbirth or neonatal death, although there were just 7 events in the gadolinium MRI group.

"The current findings inform published recommendations about the safety of MRI in the first [trimester](#) of pregnancy," the authors write. "Until further studies are done, these findings suggest that gadolinium contrast should be avoided during [pregnancy](#)."

More information: *JAMA*, [DOI: 10.1001/jama.2016.12126](https://doi.org/10.1001/jama.2016.12126)

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Citation: MRIs in first trimester of pregnancy not associated with increased risk to fetus (2016, September 6) retrieved 26 April 2024 from <https://medicalxpress.com/news/2016-09-mris-pregnancy-outcomes-infants-children.html>

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