

Antidepressive treatment during pregnancy can affect newborn brain activity

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A new Finnish study shows that fetal exposure to commonly used SRI drugs may affect brain activity in newborns. The researchers suggest that the effects of drugs on fetal brain function should be assessed more carefully. Furthermore, indications for preventive medication should be critically evaluated, and non-pharmacological interventions should be the first-line treatment for depression and anxiety during pregnancy.

"We found many changes in the [brain activity](#) of SRI-exposed newborns," says Professor Sampsa Vanhatalo, head of the BABA center at the Helsinki University Children's Hospital. "Since the changes did not correlate with the mother's psychiatric symptoms, we have assumed that they resulted as a side [effect](#) of maternal drug treatment."

Depression and anxiety are commonly treated with SRI drugs that affect [brain](#) serotonin metabolism. These drugs are well tolerated and considered safe to use during pregnancy, because they are not seen to cause major malformations. It is estimated that up to 5% of all pregnant women use SRI medication.

However, several animal studies have shown that early SRI exposure may result in microscopic changes in fetal brain structure, as well as altered neuronal signaling. The already known side effect of this on human newborns is the transient 'SRI syndrome,' including such symptoms as respiratory problems during the first days of life. In addition, a recent Finnish long-term follow-up study conducted at the Universities of Helsinki and Turku showed that [fetal exposure](#) to SRI drugs increases the risk of childhood depression.

The present study in Helsinki is the first to examine the effects of SRI exposure directly on the brain activity of newborns. The study design aimed at distinguishing drug-related developmental effects from postnatal, environmental effects, such as potential changes in the mother-baby relationship due to maternal depression. The methodology for the

detailed assessment of electrical [brain function](#) in newborns has been intensively developed at the BABA center of the Helsinki University Children's Hospital. As a result of this work, it has become possible to examine newborn brain function in detail, and better translate between research on animal models and research on human infants.

The study, involving 22 mothers using SRI medication and 62 controls without medication, aimed at assessing how fetal SRI drug exposure or maternal psychiatric symptoms affect newborns' neurological development and their brains' electrical activity.

Structured behavioral and neurological assessments of the newborns showed only minor effects from fetal SRI exposure; however, brain electrical activity exhibited several differences between the study groups. The most important relate to less-organized communication between brain hemispheres, as well as weaker synchronization between cortical rhythms. These findings did not correlate with the scores on maternal depression or anxiety.

"The most interesting aspect in our observations is that comparable effects were recently found in animal experiments after fetal SRI exposure," says principal investigator Dr. Mari Videman, senior consultant in child neurology. "This suggests that the early SRI effects on brain development may be comparable in humans and other species."

The study's psychiatric consultant, Adjunct Professor Outi Mantere from McGill University, Canada, emphasizes that pregnant mothers need treatment when they present with symptoms of depression or anxiety.

"The current guidelines do include non-pharmacological therapies as the first-line treatment," says Mantere. "If the mother using an SRI plans a pregnancy, it would be advisable to consider a close follow-up or a therapeutic intervention without SRI medication. Recent experience with

group therapy has shown promise in treating depression or anxiety during pregnancy, with effects that extend to the wellbeing of both mother and baby."

"We hope that our study will facilitate the current international discussion and search for effective alternatives in the treatment of depression and anxiety during pregnancy," adds Professor Vanhatalo.

More information: Mari Videman et al. Newborn Brain Function Is Affected by Fetal Exposure to Maternal Serotonin Reuptake Inhibitors, *Cerebral Cortex* (2016). [DOI: 10.1093/cercor/bhw153](https://doi.org/10.1093/cercor/bhw153)

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