

Long-term effects of pre-birth exposure to anti-depressants 12 years later

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Selective serotonin reuptake (SSRI) antidepressant treatment during pregnancy is associated with better performance on a computerized task to measure cognitive skills in 12 year olds, according to a new study being presented during the Pediatric Academic Societies (PAS) 2018 Meeting.

This study, led by Dr. Sarah Hutchison and senior author, Dr. Tim Oberlander, investigates the complex relationships between pre-birth exposure to selective serotonin reuptake inhibitor (SSRI) antidepressants, and thinking and attention skills in 12-year-olds. Dr. Oberlander is a developmental pediatrician and investigator at BC Children's Hospital and BC Women's Hospital + Health Centre, and a professor in the UBC Department of Pediatrics. Dr. Hutchison is a UBC postdoctoral fellow at BC Children's.

Dr. Oberlander, in collaboration with Dr. Adele Diamond, UBC professor and a Canada Research Chair, followed 51 [children](#) from 26 weeks of pregnancy to 12 years of age. In this part of the longitudinal cohort study the investigators assessed mom's mood during and after pregnancy and the child's executive functions (EFs) at 12 years of age. EFs consist of a series of skills that help kids thrive in the classroom and workplace, including flexible, creative problem solving, the ability to focus and pay attention, and self-control.

SSRIs are a popular class of antidepressants commonly used to treat a mothers' mood disorder during pregnancy. They affect the brain's level

of serotonin, a chemical that plays a critical role in the regulation of mood and attention.

Researchers found that children's performance varied depending on whether they were exposed to SSRIs before birth: Children with SSRI exposure had better EF skills, even when controlling for mother's mood during pregnancy and when the child was 12 years old. Interestingly, better EFs were also observed in the same children at 6 years (Weikum et al 2013). At 12 years, though (unlike at 6 years), differences in SSRI exposure while in utero and differences in the child's EFs did not vary with measures of the child's mood (anxiety or depression) or verbal ability.

"These are important early findings and further research is needed to examine whether 'better' cognitive skills in children with antidepressant exposure reflect a developmental advantage in some ways but also perhaps a risk in other ways, such as perhaps increased anxiety (Hanley et al, 2015)," said Dr. Oberlander. "Our findings when the children were 3 and 6 years of age indicated increased anxiety, though the absence of this at 12 years might indicate that as EFs improve further children are able to use them to help calm themselves."

At this time, researchers are continuing to study these outcomes in a larger cohort (n~120 children) where they will be able to further examine links between EFs, mood and early development.

"The impact of prenatal antidepressant exposure is not a simple cause and effect," says Dr. Oberlander. "When it comes to assessing the long-term impact of SSRI exposure before birth, genes and family-life play a powerful role in influencing how a child will be affected."

"Depression during pregnancy and beyond is a major public health problem for mothers and their children," Dr. Oberlander added. "Non-

treatment is never an option. It is really important that pregnant women discuss all treatment options with their physicians or midwives."

These findings build on Dr. Oberlander's broader research program, in collaboration with other researchers with the Brain Behavior and Development Research Theme at BC Children's, examining the developmental effects of maternal depression on babies and children. They also build on Dr. Diamond's research program, conducted in collaboration with other Neuroscience researchers at UBC and elsewhere, examining how EFs are affected by biological factors (such as genes and neurochemistry) and environmental ones (for example, impaired by stress or improved by interventions).

Dr. Hutchison will present the abstract, "Prenatal Serotonin Reuptake Inhibitor (SRI) Antidepressant Exposure Influences Executive Functions at 12 Years of Age," during the PAS 2018 Meeting on Sunday, May 6 at 5:45 p.m. EDT. Additional co-authors include Dr. Louise Mâsse, Dr. Ruth Grunau, Dr. Whitney Weikum, Ms. Ursula Brain and Mr. Cecil Chau.

Provided by Pediatric Academic Societies

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