Original Investigation

October 12, 2016

Association of Selective Serotonin Reuptake Inhibitor Exposure During Pregnancy With Speech, Scholastic, and Motor Disorders in Offspring

Alan S. Brown, MD, MPH1,2,3,4,5; David Gyllenberg, MD, PhD1,3,6; Heli Malm, MD, PhD6,7,8; et al

Author Affiliations

JAMA Psychiatry. Published online October 12, 2016. doi:10.1001/jamapsychiatry.2016.2594

Key Points

Question Is exposure to selective serotonin reuptake inhibitors during pregnancy associated with an increased risk of adverse speech, scholastic, or motor outcomes in offspring?

Findings In this cohort study, offspring of mothers who purchased at least 2 selective serotonin reuptake inhibitors prescriptions during pregnancy had a significantly increased risk of speech/language disorders compared with offspring of mothers diagnosed as having psychiatric disorders who did not take medication during pregnancy.

Meaning The findings suggest that use of selective serotonin reuptake inhibitors during pregnancy increases the risk of speech/language disorders in offspring.

Abstract

Importance Speech/language, scholastic, and motor disorders are common in children. It is unknown whether exposure to selective serotonin reuptake inhibitors (SSRIs) during pregnancy influences
susceptibility to these disorders.

**Objective** To examine whether SSRI exposure during pregnancy is associated with speech/language, scholastic, and motor disorders in offspring up to early adolescence.

**Design, Setting, and Participants** This prospective birth cohort study examined national population-based register data in Finland from 1996 to 2010. The sampling frame includes 845,345 pregnant women and their singleton offspring with data on maternal use of antidepressants and depression-related psychiatric disorders during pregnancy.

**Exposures** There were 3 groups of offspring: 15,596 were in the SSRI-exposed group, ie, had mothers diagnosed as having depression-related psychiatric disorders with a history of purchasing SSRIs during pregnancy; 9,537 were in the unmedicated group, ie, had mothers diagnosed as having depression-related psychiatric disorders without a history of purchasing SSRIs during pregnancy; and 31,207 were in the unexposed group, ie, had mothers without a psychiatric diagnosis or a history of purchasing SSRIs.

**Main Outcomes and Measures** Cumulative incidence of speech/language, scholastic, or motor disorders (829, 187, and 285 instances, respectively) from birth to 14 years. All hypotheses tested were formulated before data collection.

**Results** Of the 56,340 infants included in the final cohort, 28,684 (50.9%) were male and 48,782 (86.6%) were 9 years or younger. The mean (SD) ages of children at diagnosis were 4.43 (1.67), 3.55 (2.67), and 7.73 (2.38) for speech/language, scholastic, and motor disorders, respectively. Offspring of mothers who purchased SSRIs at least twice during pregnancy had a significant 37% increased risk of speech/language disorders compared with offspring in the unmedicated group. The cumulative hazard of speech/language disorders was 0.0087 in the SSRI-exposed group vs 0.0061 in the unmedicated group (hazard ratio, 1.37; 95% CI, 1.11-1.70; \(P = .004\)). There was a significantly increased risk of these disorders in offspring in the SSRI-exposed and unmedicated groups compared with offspring in the unexposed group. For scholastic and motor disorders, there were no differences between offspring in the SSRI-exposed group and in the unmedicated group.

**Conclusions and Relevance** Exposure to SSRIs during pregnancy was associated with an increased risk of speech/language disorders. This finding may have implications for understanding associations between SSRIs and child development.

---

**Invited Commentary**

Implications of Fetal Exposure to Selective Serotonin Reuptake Inhibitors
Association of Selective Serotonin Reuptake Inhibitor Exposure During Pregnancy With Speech, Scholastic, and Motor Disorders in Offspring

Alan S. Brown, MD, MPH; David Gullenberg, MD, PhD; Heli Mann, MD, PhD; Ian W. McKeague, PhD; Susanna Hinkka-Yli-Salonen, Ph.D.; Mia Anttila, PhD; Miika Gleer, PhD; Keeley Chernick-Postava, PhD; Myima M. Weissman, PhD; Jay A. Gingrich, MD, PhD; Andre Sourander, MD, PhD

**IMPORTANCE** Speech/language, scholastic, and motor disorders are common in children. It is unknown whether exposure to selective serotonin reuptake inhibitors (SSRIs) during pregnancy influences susceptibility to these disorders.

**OBJECTIVE** To examine whether SSRI exposure during pregnancy is associated with speech/language, scholastic, and motor disorders in offspring up to early adolescence.

**DESIGN, SETTING, AND PARTICIPANTS** This prospective birth cohort study examined national population-based register data in Finland from 1996 to 2010. The sampling frame included 845,345 pregnant women and their singleton offspring with data on maternal use of antidepressants and depression-related psychiatric disorders during pregnancy.

**EXPOSURES** There were 3 groups of offspring: 15,596 were in the SSRI-exposed group, ie, had mothers diagnosed as having depression-related psychiatric disorders with a history of purchasing SSRIs during pregnancy; 9537 were in the unmedicated group, ie, had mothers diagnosed as having depression-related psychiatric disorders without a history of purchasing SSRIs during pregnancy; and 31,207 were in the unexposed group, ie, had mothers without a psychiatric diagnosis or a history of purchasing SSRIs.

**MAIN OUTCOMES AND MEASURES** Cumulative incidence of speech/language, scholastic, or motor disorders (828, 187, and 283 instances, respectively) from birth to 14 years. All hypotheses tested were formulated before data collection.

**RESULTS** Of the 36,340 infants included in the final cohort, 28,684 (50.9%) were male and 48,782 (49.1%) were 9 years or younger. The mean (SD) ages of children at diagnosis were 4.43 (1.67), 3.55 (2.67), and 7.23 (2.38) for speech/language, scholastic, and motor disorders, respectively. Offspring of mothers who purchased SSRIs at least twice during pregnancy had a significantly increased risk of speech/language disorders compared with offspring in the unmedicated group. The cumulative hazard of speech/language disorders was 0.0087 in the SSRI-exposed group vs 0.0061 in the unmedicated group (hazard ratio, 1.37; 95% CI, 1.14-1.70; \( P = \).004). There was a significantly increased risk of these disorders in offspring in the SSRI-exposed and unmedicated groups compared with offspring in the unexposed group. For scholastic and motor disorders, there were no differences between offspring in the SSRI-exposed group and in the unmedicated group.

**CONCLUSIONS AND RELEVANCE** Exposures to SSRIs during pregnancy was associated with an increased risk of speech/language disorders. This finding may have implications for understanding associations between SSRIs and child development.

Published online October 12, 2016.

Copyright 2016 American Medical Association. All rights reserved.
Read More About

- Adolescent Medicine
- Pediatrics
- Pregnancy
- Psychiatry
- Antenatal Exposures and Child Outcomes
- Obstetrics

You May Also Like

**Opinion**
The Impact of Air Pollutants on the Brain

**Research**
Effects of Prenatal Exposure to Air Pollutants (Polycyclic Aromatic Hydrocarbons) on the Development of Brain White Matter, Cognition, and Behavior in Later Childhood

**Research**
Effect of Prenatal Exposure to Tobacco Smoke on Inhibitory Control: Neuroimaging Results From a 25-Year Prospective Study
New definitions for sepsis and septic shock

Learn more.

PHYSICIAN JOBS

Find Psychiatry Jobs Now

You May Also Like

Call to Action on Neurotoxin Exposure in Pregnant Women and Children
JAMA | News | October 11, 2016

Rates of Neonatal Abstinence Syndrome Amid Efforts to Combat the Opioid Abuse Epidemic
JAMA Pediatrics | Letter | September 26, 2016

Is the United States Prepared for a Major Zika Virus Outbreak?
JAMA | Opinion | June 14, 2016