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Fatty liver is linked to maternal use of the SSRI antidepressant fluoxetine

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Adult offspring of mothers who used fluoxetine, a common antidepressant, during pregnancy were more likely to develop a fatty liver, a new animal study has found. The results will be reported Saturday at the joint meeting of the International Society of Endocrinology and the Endocrine Society: ICE/ENDO 2014 in Chicago.

"When mothers take antidepressants during pregnancy, they may be predisposing their children to metabolic disturbances, including obesity and fatty liver in adulthood," said, the study's senior investigator, Alison Holloway, PhD, associate professor, McMaster University, Hamilton, Ontario.

Fluoxetine (marketed as Prozac) is in a class of antidepressants called selective serotonin reuptake inhibitors, or SSRIs. Although adults taking antidepressants have an increased risk of obesity and Type 2 diabetes, Holloway said it is unclear whether a woman's use of an SSRI during pregnancy increases the risk of metabolic problems in her children.

To learn the answer to this question, researchers at several Canadian institutions collaborated on this study, which received funding from the Canadian Institutes of Health Research. The investigators studied the consequences of fetal exposure to fluoxetine in rats, which Holloway called a good model for liver and metabolic disorders in humans.

Presenting author Nicole De Long, a PhD student at McMaster, gave 15 female rats the antidepressant (at a daily dosage of 10 milligrams per

kilogram of body weight) mixed in plain gelatin for two weeks before mating, during pregnancy and during lactation until weaning their young. As controls, another 15 female rats received the gelatin without the drug for the same period.

When the offspring were 26 weeks old—an age considered young adulthood—the researchers assessed the rats' livers for presence of fatty liver disease, also called nonalcoholic steatohepatitis, as well as for levels of liver lipids (fats) and markers of inflammation.

Compared with offspring of control rats, the offspring of fluoxetine-treated rats more often had signs of mild to moderate fatty liver disease, the authors reported. These rats also had higher levels of triglycerides and cholesterol in the liver.

Both male and female offspring of fluoxetine-exposed mothers also showed increased inflammation in the liver. This inflammation and increased accumulation of fat in the liver is associated with metabolic abnormalities, including obesity and Type 2 diabetes.

"We think it is possible that prenatal exposure to SSRI antidepressants may contribute to obesity and Type 2 diabetes in the children," Holloway commented.

This study provides the first evidence that children exposed to SSRIs in the womb may have increased risk of fatty liver disease," she said. "Exposed children may need monitoring and lifestyle interventions targeting obesity and diabetes prevention."

About 10 to 15 percent of pregnant women take antidepressants, past research shows.

Provided by The Endocrine Society