Study finds that anti-diabetic medication can prevent the long-term effects of maternal obesity

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In a study to be presented today at the Society for Maternal-Fetal Medicine's annual meeting, The Pregnancy Meeting, in Dallas, Texas, researchers will report findings that show that short therapy with the anti-diabetic medication Pioglitazone can prevent the long term effects of maternal obesity on offspring.

This study, Pioglitazone Therapy in Offspring Exposed to Maternal Obesity, is the first step in the long term goal of preventing metabolic syndrome and obesity in children secondary to maternal obesity. The data proposes a potential role for drugs that activate peroxisome proliferator-activated receptors in the prevention of metabolic syndrome in adult offspring of obese mothers.

"Obesity in children, which is on the rise, predisposes them to lifelong diseases such as diabetes, high lipid levels, hypertension and cardiac diseases," said Egle Bytautiene, MD, PhD, with The University of Texas Medical Branch, Obstetrics and Gynecology, Galveston, Texas, and one of the study's authors. "A large part of obesity in children is programmed during pregnancy and our study shows that a drug used to treat diabetes in adults can prevent the long term effects of maternal obesity on the offspring, even when used for a short period of time after birth."

Bytautiene and her colleagues placed mice on a high fat diet for three months prior to, and during pregnancy. The resulting pups were weaned

to a regular diet. Pups were randomly selected to receive Pioglitazone or a placebo. Treatment was given once daily from 10 to 12 weeks of age. Immediately before and after the treatment period, the offspring were weighed, their visceral adipose tissue was evaluated using computed-tomography, blood was collected for fasting glucose and triglyceride analysis, and intraperitoneal glucose tolerance tests were performed. The results showed Pioglitazone therapy significantly reduced body weight gain. There was also a trend towards lower visceral adipose tissue gain and improvement in glucose and triglyceride levels.

This is one of the first experimental studies investigating the impact of postnatal treatment in the offspring of obese dams. Its implications on the long-term metabolic status of the offspring are immense.

In addition to Bytautiene, the study was conducted by Arshag Kalanderian, Monica Longo and George R. Saade, University of Texas Medical Branch, Obstetrics & Gynecology, Galveston, Texas; Nicola Abate, University of Texas Medical Branch, Internal Medicine, Galveston, Texas; and Igor Patrikeev and Massoud Motamedi, University of Texas Medical Branch, Center for Biomedical Engineering, Galveston, Texas.

Provided by Society for Maternal-Fetal Medicine