Researchers collaborate on perinatal depression study

Depression among pregnant and postpartum women is very common but little studied.

That's about to change, thanks to a collaboration among the Michigan State University College of Human Medicine, Spectrum Health and Van Andel Research Institute.

"This approach is really the future for doing research," said Dr. Richard Leach, chair of obstetrics and gynecology and reproductive biology in the MSU College of Human Medicine. "It's a perfect blend of clinical, basic science and translational science," added Leach, who also is part of the Spectrum-MSU Alliance and academic chair of the department of obstetrics, gynecology and women's health at Spectrum Health Medical Group.

Without that collaboration, the National Institute of Mental Health likely would not have awarded the team a $3.5 million grant to research the role inflammation plays in depression among pregnant and postpartum women, said Dr. Lena Brundin, the study's principal investigator, associate professor of psychiatry and behavioral medicine in the College of Human Medicine and head of the Laboratory of Behavioral Medicine at Van Andel Research Institute.

The reviewers who recommended funding the study gave the grant application outstanding marks for its collaborative scientific environment in Grand Rapids, Brundin said.

"Their evaluation shows that our scientific environment can compete anywhere in the country," she said. "I'm particularly proud of that." The study, which began Oct. 1, is the first to look at the connection between inflammation in the placenta and depression.

Because there has been so little research on perinatal depression, the National Institute of Mental Health solicited proposals to study it.

"We're looking into something that has been overlooked before," said Brundin, who has spent much of her career studying the link between low-level inflammation in the brain and depression. She recently co-authored a study of men and women that found low levels of vitamin D and increased inflammation in the blood appear to be associated with depression and suicide attempts.

The new study, funded over a three-year period, will include 100 pregnant women—about 100 from Spectrum Health and 50 in a new Mother and Baby Postpartum Depression Treatment Program. Leach will oversee the enrollment of pregnant women at Spectrum.

The women who agree to be part of the study will give periodic blood samples, which the researchers will study for inflammation. The women will fill out questionnaires, rating their levels of depression.

After the women give birth, a team headed by Asgi Fazleabas, associate chair for research in the department of obstetrics and gynecology at Spectrum Health, will perform tissue biopsies from the placenta and look for biomarkers of inflammation.

Dr. Eric Achtyes, assistant professor and chair of psychiatry and behavioral medicine at MSU College of Human Medicine, will oversee recruitment of the women from the Pine Rest Mother and Baby program. These women, who might have clinically significant postpartum depression, will participate in the peripheral portion of the study, said Achtyes, who also is on the staff at Pine Rest.

Brundin estimated 15 percent of women have suicidal thoughts during and shortly after pregnancy although very few attempt suicide.

"Just the fact that women are having those thoughts is something we have to take seriously," she said.

During pregnancy, the placenta has a huge potential to disrupt the body's normal immune response to inflammation, since it must prevent the mother's body from rejecting the unborn baby.

"It's a large, immune-regulating organ," Brundin said, which can trigger "a cascade of inflammation" if something goes wrong. She suspects that when the inflammation spreads to the brain, it can cause depression.

Brundin expects the study will show that the women who are most depressed will have the highest levels of inflammation.

"We hope we can find biomarkers of inflammation so we can take blood tests during pregnancy," she said.

After that, they will try to develop treatments, which could include enzymes or dietary supplements to reduce the inflammation.

(Submitted by MSU College of Human Medicine)