PRESS RELEASE

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Depression in Pregnant Mothers May Alter the Pattern of Brain Development in Their Babies

Reports new study in Biological Psychiatry

Philadelphia, PA, December 4, 2013 – Depression is a serious mental illness that has many negative consequences for sufferers. But depression among pregnant women may also have an impact on their developing babies.

Children of depressed parents are at an increased risk of developing depression themselves, a combination of both genetic and environmental factors. These children also display alterations in the amygdala, a brain structure important for the regulation of emotion and stress. However, prior work in this area has assessed children years after birth, which means that the timing of these alterations has remained unidentified.

Researchers led by Dr. Anqi Qiu at the National University of Singapore now have the answers, with their new work published in the current issue of *Biological Psychiatry*.

They set out to perform a direct analysis of prenatal maternal depression and variation in the fetal development of the amygdala. To do so, they recruited 157 pregnant women who completed a depression questionnaire during their 26th week of pregnancy. Later, within two weeks of birth, newborns underwent magnetic resonance imaging scans to ascertain the structure of their amygdala and diffusion tensor imaging scans to determine the integrity of the amygdala's pattern of neural connections.

The volume of the amygdala did not differ between the infants regardless of their mothers' depression status. However, the researchers found significantly reduced structural connectivity (i.e., lower fractional anisotropy and lower axial diffusivity) in the right amygdala of infants of mothers with high levels of depression symptoms. In other words, the amygdala's microstructure (e.g., its "wiring") was abnormal in the infants born to depressed mothers.

This important finding suggests that a propensity for abnormal amygdala function, a feature of mood and anxiety disorders, may be transmitted from mother to child during fetal life. This finding suggests one new path that a history of maternal depression might contribute to a life-long increase in the vulnerability to mental illness.

This study provides added evidence supporting the notion that mental health screening should be included among the medical evaluations that women undergo when they discover that they are pregnant. Indeed, the authors conclude that their study supports that "interventions targeting maternal depression should begin early in pregnancy."

"Attention to maternal health during pregnancy is an extremely high priority for society for many reasons," added Dr. John Krystal, Editor of *Biological Psychiatry*. "The notion that maternal depression might influence the brain development of their babies is very concerning. The good news is that this risk might be reduced by systematic screening of pregnant women for depression and initiating effective treatment."

The article is "Prenatal Maternal Depression Associates with Microstructure of Right Amygdala in Neonates at Birth" by Anne Rifkin-Graboi, Jordan Bai, Helen Chen, Waseem Bak'r Hameed, Lit Wee Sim, Mya Thway Tint, Birit Leutscher-Broekman, Yap-Seng Chong, Peter D. Gluckman, Marielle V. Fortier, Michael J. Meaney, and Anqi Qiu (doi: 10.1016/j.biopsych.2013.06.019). The article appears in *Biological Psychiatry*, Volume 74, Issue 11 (December 1, 2013), published by Elsevier.

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Notes for editors
Full text of the article is available to credentialed journalists upon request; contact Rhiannon Bugno at +1 214 648 0880 or Biol.Psych@utsouthwestern.edu. Journalists wishing to interview the authors may contact Dr. Anqi Qiu at bieqa@nus.edu.sg.

The authors' affiliations, and disclosures of financial and conflicts of interests are available in the article.

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The journal publishes novel results of original research which represent an important new lead or significant impact on the field, particularly those addressing genetic and environmental risk factors, neural circuitry and neurochemistry, and important new therapeutic approaches. Reviews and commentaries that focus on topics of current research and interest are also encouraged.

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