First significant genetic finding in severe PMS, or PMDD

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The first significant genetic finding in premenstrual dysphoric disorder (PMDD) has now been reported. PMDD is a very severe form of the more commonly known premenstrual syndrome, or PMS. PMDD is heritable, affects 5-8% of women, and is associated with severe emotional and physical problems, such as irritability, marked depressed mood, anger, headaches, weight gain and more, to such an extent that quality of life is seriously impacted.

Previously, researchers have shown that women with PMDD have an abnormal response to normal hormone levels and, thus, are differentially sensitive to their own hormone changes. Huo and colleagues now report their new findings, which link PMDD with common variants in the estrogen receptor alpha gene, in an article scheduled for publication in the October 15th issue of *Biological Psychiatry*.

Huo and colleagues performed genetic testing and analyses on women diagnosed with PMDD and healthy control subjects to investigate possible sources of the genetic susceptibility to experience PMDD, and found variants in the estrogen receptor alpha gene that are associated with PMDD. In other words, women with these particular genetic variants were more likely to suffer from PMDD.

Importantly, the authors also discovered that this association is seen only in women with a variant form of another gene, catechol – o – methyltransferase (COMT), which is involved in regulating the function of the prefrontal cortex, a critical regulator of mood. David Rubinow,

M.D., lead author on this project, notes that these findings “may help fill in the picture of how changes in ovarian hormones can lead to depression and why they do so only in a small subset of women.”

John H. Krystal, M.D., Editor of Biological Psychiatry and affiliated with both Yale University School of Medicine and the VA Connecticut Healthcare System, comments, “We have been waiting for molecular genetics to provide some insights into the neurobiology of PMDD and this report from Huo et al. provides a welcome starting point for this research area.” He adds, “In the case of PMDD, we are interested in the internal, hormonal environment as well as external environmental factors, such as stress. This report suggests that genetic factors may influence both dimensions of PMDD vulnerability.”

Although this is a preliminary report and further research, including replication of this finding, is needed, it represents an important advance in the genetic understanding of PMDD. As Dr. Rubinow explains, “The more that we can learn about how cyclical depressions get triggered in women with PMDD and why, the better will be our understanding of non hormone-related depression as well as the normal regulation of mood.”

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