

Maternal PTSD Tied to Vulnerability in Offspring

BY BARBARA J. RUTLEDGE
Contributing Writer

SANTIAGO, CHILE — Risk factors affecting a person's vulnerability to post-traumatic stress disorder (PTSD) include factors associated with personal experiences as well as genetic or heritable factors, Rachel Yehuda, Ph.D., said at an international congress sponsored by the World Federation of Societies of Biological Psychiatry.

Trauma can cause symptoms in offspring even though the trauma is experienced vicariously, Dr. Yehuda said. Vulnerability to stress can be biologically transmitted, either through genetic susceptibility or possibly by epigenetic transmission.

Low cortisol levels are associated with PTSD. As might be expected, cortisol levels have been shown to be low in high-risk PTSD subjects immediately after trauma, or in those who actually develop PTSD at follow-up, Dr. Yehuda said. In studies involving adult children of Holocaust survivors, for example, Dr. Yehuda and her colleagues have shown that cortisol levels were significantly lower in the offspring of Holocaust survivors who had PTSD, compared with those whose parents did not have PTSD.

Follow-up studies have shown that maternal, not paternal, PTSD is relevant to cortisol effects in the offspring, said Dr. Yehuda, professor of psychiatry at the Mount Sinai School of Medicine and the James J. Peters VA Medical Center, both in New York.

In a study of women who were pregnant during the Sept. 11, 2001, terrorist attacks in New York City, Dr. Yehuda and her colleagues found that the infants of mothers with PTSD had lower cortisol levels than did infants of those without PTSD (*J. Clin. Endocrinol. Metab.* 2005;90:4115-8).

Normally, the sympathetic arousal associated with the acute stress decreases over time, and the individual can recall the traumatic event without experiencing physiologic responses. In some people, though, recovery does not take place, and PTSD occurs—sometimes months or even years after the traumatic event.

Early experiences influence the subjective interpretation of events. A person's response to trauma may resemble those of his parents, Dr. Yehuda said. Parents transmit perspectives about the world to their offspring. As a result, parents who suffer from PTSD may have deficits in parenting, and children can "learn" symptoms of stress from their parents.

Subjective interpretation of an event largely determines whether that event is traumatic to a person. What the subject thinks about the event—including why it happened and what could have been done differently—affects the response to trauma. A subject who blames herself for rape, or a subject who feels that an event occurred as punishment from God, may be more likely to experience PTSD than will someone who regards his involvement in the traumatic event as a matter of chance.

PTSD has been recognized as a diagnosis since the publication of the DSM-III.

"In the beginning when PTSD was first established, the idea really was to have a diagnostic entity that would explain long-term response to a traumatic event, and the discussions were about what kind of event would give [rise to] PTSD," Dr. Yehuda said. What has become clear is that most people who are exposed to trauma do not develop this disorder, she noted; "PTSD does occur frequently, but it is more likely not to occur, no matter what traumatic event we are talking about."

Consequently, the focus has switched from a definition of which traumatic events lead to PTSD to a definition of why some people are more vulnerable, or less resistant, than others to the long-term effects of trauma. Risk factors that affect vulnerability to PTSD include post-traumatic factors, such as retraumatization and lack of social support. Event characteristics, such as injury or intense emotional responses associated with the traumatic event, are pretraumatic factors

that can increase the likelihood of PTSD.

In an effort to identify those with greater vulnerability to PTSD, Dr. Yehuda's research has focused on characterizing pre-traumatic factors that may contribute to a person's reaction of intense distress.

Unresolved issues in the field of PTSD research include whether there are distinct biologic correlates of different risk factors for PTSD and whether a biologic "final common pathway" exists representing PTSD, Dr. Yehuda said. ■

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