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Traumatic stress linked to biological indicator

Victoria Colliver, Chronicle Staff Writer
Tuesday, January 3, 2012

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Researchers are getting closer to being able to predict who might be more vulnerable to stress even before they experience trauma.

A study of Bay Area and New York police academy recruits by researchers at the San Francisco Veterans Affairs Medical Center, UCSF and New York University is considered one of the first and largest studies to look at biological stress indicators before and after traumatic events.

"This study is unique because it looks at people before they've actually been exposed to trauma," said lead author Sabra Inslicht, a psychologist at the San Francisco VA Medical Center and an assistant professor of psychiatry at UCSF.

Nearly 300 academy recruits took samples of the waking levels of a stress hormone called cortisol. The results, published in last month's issue of the journal Biological Psychiatry, found that recruits with higher cortisol levels shortly after waking up in the morning were most likely to have stressful reactions to trauma years later as police officers.

The new study is part of a larger body of research involving hundreds of recruits from the San Francisco, Oakland, San Jose and New York police departments that has been going on for seven years, said Dr. Charles Marmar, who spent 30 years at UCSF before taking over as chairman of the department of psychiatry at NYU's Langone Medical Center.

"The basic question is, why is the majority of men and women serving in law enforcement able to withstand repeated exposure to threatening circumstances ... but a minority are somewhat more vulnerable?" said Marmar.

The recruits had already passed their police departments' extensive screening process, so researchers considered them capable of tolerating fairly high levels of stress.

Academy recruits who agreed to participate provided cortisol levels through saliva samples taken immediately after waking up and then again after 30 minutes. Those samples were then compared with those taken a year, two years and then three years after they began active service.

Researchers kept the recruits' participation in the study in strict confidence. Their police supervisors did not even know they were participating, yet alone learn any individual results.

The study found that recruits with a higher "cortisol awakening response" - or a higher level of cortisol

after waking up - tended to have stronger reactions to stress shortly after a traumatic event. The reactions - including intrusive memories, increased heart rate and breathing as well as conscious avoidance of the event - are all symptoms of post-traumatic stress disorder, or PTSD, except in a shorter time frame.

"What this study has shown is one particular marker of the stress response system was associated with how a police officer responded at the time of critical exposure," Inslicht said.

The investigators said similar research could be applied to military recruits and war veterans as well as the civilian population. They said the information is not intended to be used to prevent or discourage people from serving in law enforcement.

"The goal of our work is to provide as much information as possible to law enforcement to protect and manage their precious human resources," Marmar said.

Marmar said the information could be used to help detect, prevent and treat stress disorders. "There are different levels of resilience and vulnerability. People could be matched to roles in law enforcement that play to their strengths," he said.

The study was funded by the National Institute of Mental Health and the Department of Veterans Affairs.

E-mail Victoria Colliver at vcolliver@sfchronicle.com.

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This article appeared on page **C - 1** of the San Francisco Chronicle

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