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RESPONSIVITY TO STRESS IN CHRONIC POSTTRAUMATIC STRESS DISORDER DUE TO CHILDHOOD SEXUAL ABUSE¹

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Summary.—The purpose of this study was to investigate psychological, cardiovascular, and neuroendocrine reactivity to standardized stress tests (orthostatic challenge, Stroop Color Word Test) in drug-free adult women with chronic PTSD due to repetitive childhood sexual abuse. At baseline, the 11 patients showed significantly higher mean scores on the Symptom Check List-90 and the Profile of Mood States than 13 healthy female controls, whereas baseline cardiovascular or hormonal parameters showed no differences between the groups. Also, no significant differences were found between the two groups in cardiovascular and hormonal responsivity to the stress tests. Thus, in the presence of robust psychological differences, the patients with chronic PTSD due to childhood sexual abuse did not show alterations in baseline values of neurobiological parameters, nor did they react differently to a physical and mental stress test when compared to healthy controls.

Post Traumatic Stress Disorder (PTSD) is a psychiatric condition that may occur in susceptible individuals after exposure to a life- or physical integrity-threatening traumatic event, accompanied by extreme fear, helplessness, or horror (American Psychiatric Association, 1994). Charney, Deutch, Krystal, Southwick, and Davis (1993) hypothesized chronic PTSD may lead to an enduring psychobiological dysregulation, showing in a temporal progressive amplification of responsivity to stress, fear conditioning, and failure to inhibit or extinguish fear. Several, sometimes contradictory, hypotheses have been proposed about short- and long-term alterations in the neurobiological stress systems in PTSD, the main ones being the hypothalamus-pituitary-adrenal (HPA)-axis system and the autonomic nervous system (e.g., Yehuda, Giller, Levengood, Southwick, & Siever, 1995; Heim, Newport, Heit, Graham, Wilcox, Bonsall, Miller, & Nemeroff, 2000). This study explored whether drug-free adult women with chronic PTSD due to childhood sexual abuse would show altered baselines and reactivity of psychological, cardiovascular, and neuroendocrine parameters to standardized physical and mental stress as compared to healthy controls.

¹The authors thank Ria Keulemans (Delta Psychiatric Hospital, Poortugaal) for her assistance during the experimental phase of this study and Wendy Hugens for skilled technical assistance. Address correspondence to U. M. H. Klumpers, Department of Psychiatry, Free University Amsterdam, GGZ Buitendamstel, Valeriusplein 9, 1075 BG Amsterdam, The Netherlands or e-mail (ursulak@ggzba.nl). A detailed report of this study is available upon request.

Method.—Eleven drug-free female patients (M age: 30.6 yr.; range: 21–42) with chronic PTSD due to childhood sexual abuse, and 13 healthy female controls (M age: 32.5 yr.; range 21–41) participated. All patients were diagnosed with chronic PTSD without current major depression, based on a structured clinical interview for PTSD (Davidson, Malik, & Travers, 1997), with identified cause being childhood sexual abuse (age 3–11 years). The Symptom Check List-90 (Derogatis, Lipman, & Covi, 1973) for current psychopathology was completed by all subjects. The subjects were studied during a period of supine rest (15 min.), orthostatic challenge (active standing, 10 min.), relaxation in the sitting position (15 min.), and performance of the Stroop Color Word Test (20 min.; version by Tulen, Moleman, Van Steenis, & Boomsma, 1989). Venous blood samples were collected after each period for assay of plasma epinephrine and norepinephrine levels (indices of sympathetic nervous system activity) and plasma cortisol concentrations (index of HPA-axis activity). Heart rate and systolic and diastolic blood pressure (cardiovascular parameters; indices of autonomic nervous system activity) were assessed at regular intervals of 5 min. during supine rest, sitting, and the color-word test and at intervals of 2.5 min. during standing. Before and immediately after performance of the color-word test, changes in subjective mood were assessed by means of the Profile of Mood States (McNair, Lorr, & Droppleman, 1971).

Results and discussion.—Patients' and controls' means differed significantly on all subscales, as well as the total score, of the SCL-90 (Mann-Whitney U tests, $ps < .001$). Also, before the color-word test, the PTSD patients scored significantly higher than the controls on the Profile subscales of Depression, Fatigue, and Tension (Mann-Whitney U tests, $ps < .01$), and significantly lower on the subscale Vigour ($p < .01$). After completion of this task, patients still scored significantly higher than controls on Depression, Fatigue, and Tension ($ps < .01$), but not on Vigour. In contrast, the PTSD patients and controls showed no significant mean differences for cardiovascular parameters at baseline and cardiovascular responsivity to active standing and the color-word test. The two groups were also similar regarding plasma catecholamines and cortisol parameters during baseline and task performance. We have to conclude that in this small, but selected, population of female patients with chronic PTSD complaints due to childhood sexual abuse, no compelling evidence was found for either altered baselines or reactivity of the main biological stress systems when compared to those of controls, despite the presence of robust differences at the psychological level. In further studies, the use of more stress-provoking tasks and a larger patient sample may further enlighten the complex interactions between biological stress systems and psychophysiological functioning.

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