STRUCTURE OF AGGRESSIVE BEHAVIOR IN CROATIAN COMBAT RELATED CHRONIC POSTTRAUMATIC STRESS DISORDER PATIENTS

Zoran Zoričić, Danijel Buljan, Vlatko Thaller, Dalibor Karlović, Ante Barbir, Jelena Potkonjak and Križo Katinić

University Department of Psychiatry, Sestre milosrdnice University Hospital, Zagreb, Croatia

SUMMARY – Aggressive behavior is one of the symptoms of posttraumatic stress disorder (PTSD). The aim of the study was to investigate the structure of aggressive behavior in combat related PTSD patients exhibiting an elevated level of aggression. A group of soldiers (N=40) with combat experience were assessed by use of a structured clinical interview based on DSM-IV criteria for chronic PTSD. The A-87 aggression rating scale was used to determine the level of aggression in study subjects. Study results indicated the combat related PTSD patients to exhibit a higher level of verbal latent aggression and physical latent aggression, and a lower level of verbal manifest aggression, physical manifest aggression and indirect aggression. In conclusion, results of the study suggested the soldiers with combat experience suffering from PTSD to have a specific structure of aggression characterized by a high level of latent aggression.

Key words: *Stress disorders – posttraumatic, complications; Aggression, psychology; Comorbidity; Combat disorders, complications; War*

INTRODUCTION

Posttraumatic stress disorder (PTSD) is a relatively new diagnostic category, as it was only in 1980 that PTSD was introduced in the modern diagnostic psychiatric textbooks[1]. However, a cluster of symptoms described as PTSD was already known and referred to after World War II as war traumatic neurosis[2]. Once thought to be primarily limited to soldiers in combat, PTSD has now been recognized also in civilians, including those who have experienced various disasters, physical and sexual assault, fire, car accidents and other serious psychotraumatic events as well as those who have witnessed injury infliction or death in the others[3]. Exposure to a traumatic event is common, being estimated to range from 5% to 35% *per* year, with a lifetime exposure to one or more traumatic events occurring in more than 50% of the US population[2,3]. Frequently, PTSD is a chronic illness, with a median time to recovery of 3-5 years[4].

Clinical presentation of PTSD is characterized by moderate to severe symptoms in three separate domains: intrusive, avoidance, and hyperarousal symptoms[1]. The latter, hyperarousal symptomatology is related to irritability, anger, excited mood, and aggressive behavior[5]. Aggressive behavior in PTSD may result in many marital problems, difficult social relations, and suicidal behavior[2,3]. However, aggressive behavior as a symptom is present in many psychiatric conditions, i.e. personality disorders, psycho-organic syndromes, mental retardation, conduct disorder, alcohol addiction, schizophrenia, and mood disorders[1].

There are several explanations of the etiology of aggressive behavior[6]. Psychological theories explain aggressive behavior by personality structure and/or psychodynamic or other personality features. There also are sociological the-

Correspondence to: *Zoran Zoričić, M.D.,* University Department of Psychiatry, Sestre milosrdnice University Hospital, Vinogradska c. 29, HR-10000 Zagreb, Croatia

Received February 18, 2002, accepted in revised form July 5, 2002

ories that explain aggressive behavior by social environment. Biological theories analyze aggressive behavior through hormone and neurotransmitter changes, and through neuroanatomical studies.

The aim of the present study was to investigate the structure of aggressive behavior in Croatian soldiers with combat related PTSD.

SUBJECTS AND METHODS

Subjects

Study group included 40 male Croatian war veterans aged 23-54 (median age 35.2) years with chronic combat related PTSD, 55% of them single and 62% with high school education. Study subjects had no other psychiatric or medical comorbidity. An informed consent for participation in the study was obtained from all study patients. They all had been taking psychopharmaceuticals, mostly antidepressants and anxiolytics, before inclusion in the study.

Medical examination

The presence of PTSD was assessed by a structured clinical interview based on DSM-IV criteria[1]. This part of the study was performed by two psychiatrists, each of them examining the study subjects independently. The agreement between the two examiners was high (0.97). The clinical psychologist used Watson's PTSD interview based on DSM-III criteria to measure posttraumatic stress reactions[7]. The agreement between the psychiatric and psychological criteria was 0.95.

The level of aggression was measured by Žužul's A-87 aggression rating scale. This scale consists of five subscales: verbal manifest aggression (VMA), physical manifest aggression (PMA), indirect aggression (IA), verbal latent aggression (VLA), and physical latent aggression (PLA). On each subscale, the minimum score is 15 and maximum 75 points. The high validity of this instrument was confirmed by evaluation of its psychometric characteristics in a Croatian sample[8].

Statistical analysis

Normal distribution for all measures was assessed by Kolmogorov-Smirnov test. Data were expressed as mean ± standard deviation (SD). Data on VMA, PMA, IA, VLA and PLA were evaluated by the analysis of variance (ANOVA). Post-hoc Scheffe method was used for pair-wise comparisons[9]. Statistical significance was set at a level of 1%. All data processing was done by use of the SPSS 8.0 statistical package (SPSS for Windows 8.0, SPSS, Chicago, IL, USA).

Results

Mean values and SD of VMA, PMA, IA, VLA and PLA are shown in Table 1. There was a statistically significant difference between the scores on each subscale ($F=18.850$; $df=4$; $p<0.01$). Post-hoc Scheffe test yielded statistically significant differences in the levels of verbal and physical manifest aggression *versus* indirect, verbal and physical latent aggression ($p<0.01$ for all analyses), with high levels of the former (Table 1). Post-hoc Scheffe test showed no statistically significant differences either between the levels of verbal and physical manifest aggression ($p>0.98$), or betwen the levels of verbal and physical latent aggression ($p>0.092$).

Table 1. Mean values and standard deviations (SD) of verbal manifest aggression (VMA), physical manifest aggression (PMA), indirect aggression (IA), verbal latent aggression (VLA), and physical latent aggression (PLA) scores in combat related PTSD

	Mean	SD
VMA	33.2	8.1
PMA	33.6	10.5
IA	44.5	9.9
VLA	55.4	12.3
PLA	53.1	14.1

$F=18.850$; $df=4$; $p<0.001$

Discussion

Study results showed higher levels of verbal and physical latent aggression in Croatian soldiers suffering from combat related PTSD. These findings differ from those obtained for aggression structure in the general population, where all aggressive patterns were found to be present at equal levels[8].

The A-87 rating scale was used to measure the level of aggression. We chose this rating scale because of its specificity for different types of aggression, i.e. manifest, latent and indirect aggression[8]. There are numerous tests for the measurement of aggression[10], the Žužul aggression rating scale being one of most useful tools. In this model, aggression is defined as a physical or verbal reaction directed to

other person with the aim to do harm or damage irrespective of the reaction realization[8].

Aggressive behavior is one of the symptoms from the hyperarousal cluster of symptoms in PTSD. Other studies have suggested the involvement of serotonin as a monoamine neurotransmitter in PTSD, considering its role in the regulation of mood, arousal, sleep, and finally aggressive behavior[11,12]. Platelet monoamine oxidase B (MAO-B) activity has been proposed as an inductor of serotoninergic system[13], and low platelet MAO-B activity has been suggested as a psychopathologic risk factor for many conditions such as alcohol dependence, antisocial and aggressive behavior, psychopathic criminal offences, and schizophrenia[14]. An overall significantly lower MAO-B activity has been reported in PTSD patients[15].

However, combat veterans constitute a subgroup exhibiting a significantly higher frequency of aggression as compared with other war victims[16,17]. Also, many epidemiologic and clinical studies have been so designed as to investigate aggression in combat veterans[18]. Aggressive behavior in PTSD patients is the most common reason for their seeking help and visiting psychiatrist office[19]. Furthermore, PTSD is frequently associated with other psychiatric comorbidity[20], alcohol addiction and depression being most common[20,21]. Problems with alcohol were present in 40% of veterans with PTSD, and it is a major factor in aggravating aggressive behavior in PTSD subjects[22]. Some authors explain depression as a comorbid condition in PTSD as autoaggressive behavior. A previous study in a population of Croatian combat veterans showed the aggressive behavior to manifest mostly as autodestruction (attempted suicide). In the same study, aggressive behavior in patients with combat related PTSD was related with lower socioeconomic status, lower educational level, previous maltreatment, and previous manifestations of aggression[23].

In conclusion, the results of the present study suggested a different structure of aggression in patients with PTSD, the aggression being mostly cumulated at the latent, both verbal and physical, level. Additional studies are needed, especially biological, to analyze the specific PTSD symptomatology and correlations of serotonin and MAO-B activity, aggressive behavior and level of depression.

References

1. American Psychiatric Association. Diagnostic and statistical manual of mental disorders. 4th ed. Washington, DC: APA, 1994.
2. PEARN J. Posttraumatic stress disorders: a classification with implications for prevention and management. Mil Med 2000;165:434-9.
3. KESSLER RC, SONNEGA A, BROMET E. Posttraumatic stress disorder in the national comorbidity survey. Arch Gen Psychiatry 1995;52:1048-60.
4. BESLAU N, DAVIS GC. Posttraumatic stress disorder in an urban population of young adults: risk factors for chronicity. Am J Psychiatry 1992;149:671-5.
5. BALLENGER J, DAVISON J. Consensus statement on posttraumatic stress disorder from the International Consensus Group on Depression and Anxiety. J Clin Psychiatry 2000;61:60-6.
6. KAPLAN H, SADOCK H. Comprehensive textbook of psychiatry. 6th ed. New York: Williams & Wilkins, 1995.
7. WATSON CG, JUBA MP, MANIFOLD U, KUCALA T, ANDERSON PD. The PTSD interview: rationale, description, reliability, and validity of a DSM-III based technique. J Clin Psychol 1991;47:179-86.
8. KERESTEŠ G, ŽUŽUL M. Priručnik za primjenu Upitnika za mjerenje agresivnosti. Jastrebarsko: Naklada Slap, 1992.
9. IVANKOVIĆ D. Osnove statističke analize za medicinare. Zagreb: Medicinski fakultet, 1989.
10. MOYER KE. The physiology of hostility. Chicago: Markham, 1971.
11. JACOBS BL. Serotonin and behavior: emphasis on motor control. J Clin Psychiatry 1991;12:17-23.
12. SOUTHWICH SM, KRYSTAL JH, BREMNER JD, MORGAN CA, NICOLAN AL, NAGY LM. Noradrenergic and serotoninergic function in posttraumatic stress disorder. Arch Gen Psychiatry 1997;54:749-58.
13. ORLEAND L, SHASHAN EG. Some rationale behind the use of monoamine oxidase activity as a biological marker. Trends Pharmacol Sci 1983;4:339-41.
14. LIEWOVITZ MR, HOLLANDER E, SCHNEIER F, CAMPEAS R, WELKOWITZ L, HATTERER J. Reversible and irreversible monoamine oxidase inhibitors in other psychiatric disorders. Acta Psychiatr Scand 1990;82:29-34.
15. DEFAZIO D, RUSTIN S, DIAMOND A. Symptom development in Vietnam-era veterans. Am J Orthopsychiatry 1975;45:158-63.
16. FIGLEY CR, EISENHART W. Contrasts between combat/noncombat Vietnam veterans regarding selected indices of interpersonal adjustment. Presented at Annual Meeting of the American Sociological Association, San Francisco, CA, 1975.
17. HORWITZ MJ, SOLOMON GF. A prediction of delayed stress response syndromes in Vietnam veterans. J Soc Issues 1975;31:67-80.
18. RILEY WT, TREIBER FA, WOODS MG. Anger and hostility in depression. J Nerv Ment Dis 1989;177:668-74.
19. ROSENHECK R. Malignant post-Vietnam stress syndrome. Am J Orthopsychiatry 1985;55:166-76.
20. KEANE TM, WOLFE J. Comorbidity in posttraumatic stress disorder: an analysis of community and clinical studies. J Appl Soc Psychol 1990;20:1776-88.
21. BRADY KT. Posttraumatic stress disorder and comorbidity: recognising the many faces of PTSD. J Clin Psychiatry 1997;58 (Suppl 9):12-5.

22. KOFOED L, FRIERDMAN MJ, PECK R. Alcoholism and drug abuse in patients with PTSD. Psychiatr Q 1993;64:151-71.

23. BEGIĆ D, BEGIĆ JN. Aggressive behavior in combat veterans with posttraumatic stress disorder. Mil Med 2001;166:671-6.

Sažetak

STRUKTURA AGRESIVNOSTI U HRVATSKIH BOLESNIKA S POSTTRAUMATSKIM STRESNIM POREMEĆAJEM POVEZANIM S BORBENIM ISKUSTVIMA

Z. Zoričić, D. Buljan, V. Thaller, D. Karlović, A. Barbir, J. Potkonjak i K. Katinić

Agresivno ponašanje je jedan od simptoma posttraumatskog stresnog poremećaja (PTSP). Cilj ovoga istraživanja bio je istražiti strukturu agresivnosti u vojnika s borbenim iskustvima koji boluju od PTSP-a. U skupini bolesnika s PTSP-om (N=40) primijenjena je metoda upitnika sa strukturiranom kliničkom ocjenskom ljestvicom prema kriterijima DSM-IV za PTSP. Ocjenska ljestvica za agresivnost A-87 primijenjena je za mjerenje razine agresivnosti. Rezultati su ukazali na to da vojnici s borbenim PTSP-om pokazuju višu razinu verbalne latentne i fizičke latentne agresivnosti te nižu razinu verbalne manifestne, fizičke manifestne i neizravne agresivnosti. U zaključku se ističe kako vojnici s borbenim iskustvima pokazuju specifičnu strukturu agresivnosti s višom razinom latentne agresivnosti.

Ključne riječi: *Stresni poremećaji – posttraumatski, komplikacije; Agresivnost, psihologija; Komorbiditet; Borbeni poremećaji, komplikacije; Rat*