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Vicarious PTSD in Sardasht chemical warfare victims' offspring

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Abstract

Introduction: The aim of this study is evaluation of vicarious PTSD in Sardasht chemical warfare victims' offspring.

Material and Methods: In this descriptive study, 286 persons were selected from single over 15 years' old offspring of Sardasht chemical warfare victims' families as case group and complete Mississippi Questionnaire.

Results: Results didn't show significant differences in Mississippi degree between age groups and sex (male and female). Average of total Mississippi degree was 128.88 ± 13.92 in offspring of chemical warfare victims.

Discussion: This study reveals the high prevalence of vicarious PTSD in children of chemical warfare victims

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Keywords: vicarious traumatization, chemical victims, chemical warfare

1. Introduction

Sardasht is a small Iranian city in northwestern Iran, with a 10-km distance from the Iran-Iraq border, which exposed during the war to both high intensity conventional warfare (60 times) and to chemical weapons. In June 1987, this Kurdish town was bombarded with four 250-kg sulfur mustard warheads that exploded in the center of town and exposed approximately 4500 residents (Hashemian, et al, 2006). Researchers reported PTSD in 90% of Iranian chemical warfare victims (Tavalaei et al, 2006). Demonstrated anxiety disorders in 57% of soldiers which exposed to chemical and biological agents. (Romano and King, 2001) Anxiety and depression disorders, sexual dysfunction and marital dissatisfaction reported to be more frequently in Iranian chemical warfare victims in comparison with other disabled veterans. (Ahmadi et al, 2006; Ahmadi et al, 2007)

Vicarious traumatization is also referred to as a secondary trauma. First, it was explained about clinicians who work with traumatized individuals, whether they work with victims of child maltreatment, domestic violence, victims of torture, or victims of large-scale disasters. (Farrar, 2002)

Secondary traumatic stress is defined as psychogenic reaction to a traumatic experience of another one who is important for the person. (Figley, 1998; Fullerton and Ursano, 1997) Symptoms of secondary or vicarious traumatization are extremely similar to the symptoms of directly affected ones, including nightmares about the directly traumatized person, insomnia, irritability, loss of emotions, fatigue, and etc. (Figley, 1998)

Children of veterans were more likely to show psychological disorders and PTSD. The most common form of these disorders was ADHD. (Fairbank et al., 1993; Kalantari, 1993, Rutter and Quinton, 1984) There are few studies worldwide which investigated mental health consequences of exposure to chemical agents. Some available articles

disclosed posttraumatic stress disorder (PTSD) symptoms in a sample of World War II (WWII) veterans exposed to mustard gas, 50% experienced partial or full lifetime PTSD nearly one third met criteria for full current PTSD 50 years after the exposure. (Ford, et al, 2004; Jankowski et al., 2004; Schnurr et al., 1997; Schnurr et al., 1996)

Vafaei et al in 2003 demonstrated more depression among Iranian chemical warfare victims than other disabled victims of Iran-Iraq war (which called Janbaz in Persian). (Vafaei and Seidy, 2003)

The aim of this study is to evaluate the secondary post-traumatic stress disorder among children of victims of Iraq's chemical warfare against Iran almost 20 years after bombardment of Sardasht. Thus the aim of this study is evaluation of vicarious PTSD in Sardasht chemical warfare victims' offspring.

Material & Methods

In a descriptive study, we enrolled 286 ≥ 15 years old single children of chemical attacks survivors as case. In order to assign case subjects, all records related to Chemical attack victims who were available in Shahid & Isargaran Affairs Bonyad in Sardasht city were reviewed by the study group. There were 1336 registered chemical warfare victims in Sardasht. Children of the victims who met the inclusion criteria were enrolled. Our inclusion criteria included having father experienced Chemical warfare during Iran-Iraq war, having a complete family (including father, mother and at least one ≥ 15 years old single child), absence of chronic illness or malignancy in other family members, absence of other chemical warfare victims or disabled persons in the family, and finally declaring consent to participate in the study. 176 families met the criteria to include in our study, among which 150 families (85.2% of target population) had accepted to participate in the study.

Vicarious PTSD was assessed using Mississippi Questionnaire. The Mississippi Scale for Combat-Related PTSD is widely used in the assessment of post-traumatic stress disorders. The M-PTSD is a 39-item self-report measure that assesses combat-related PTSD in veteran populations. Items sample DSM III symptoms of PTSD and frequently observed associated features (substance abuse, suicidality, and depression). Respondents are asked to rate how they feel about each item using 5-point, Likert-style response categories. Ten positively framed items are reversed scored and then responses are summed to provide an index of PTSD symptom severity which can range from 39-195.

This Scale developed by Keane, Caddell and Taylor in 1988 and revised by Fran Norris and Julia Perilla in 1996. (Norris, 1996) High cross-language stability was demonstrated by Norris before. (Norris) The Persian version validated by Goodarzi et al for the Iranian population (1382) with a high internal consistency (Cronbach $\alpha=0.91$).

Results

Among 286 cases, 154 (53.8%) were 15-20 years old, 117 (40.9%) were 21-30 yrs old, 11 (3.8%) 31-40 yrs old, and 2 subjects more than 40 years old. 157 (54.8%) persons were male and 127 (44.4%) were female. There was no significant relationship between Mississippi score and different age or sex groups. ($P \geq 0.05$) (Tabl 1,2)

Intensity of PTSD was evaluated by this questionnaire as well, and demonstrated higher rates of severe cases in the case group were 5.5% severe cases (score ≥ 130) and 93% moderate cases (65-130 scores) among children of chemical warfare victims, and 2% severe and 70% moderate PTSD in the control group. (Tabl 3)

In the victims' children group, 78% suffer severe and moderate problems in their personal relationship. Among victims' children, 22.4% were severely, and 71% were moderately unable to control emotional feelings. (Table 4)

Lack of severe depression exists among 52.7% of chemical victims' children. (Table 4)

Severe penetrating memories were significantly higher in the case group compared with the control group (35.32 ± 6.18 compared to 28.77 ± 7.67 , $P < 0.05$)

According to T-test, problems in personal relationship is significantly higher among cases compared with controls (29.59 ± 3.99 compared to 25.38 ± 7.16 , $P < 0.05$)

Inability in controlling emotional feelings were more frequent among cases than the controls (32.60 ± 3.93 compared to 28.00 ± 8.62 , $P < 0.05$)

Lack of depression similar to other 3 factors of Mississippi Scale is higher in the cases (31.41 ± 4.92) compared with the controls (26.17 ± 9.31) ($P < 0.05$). (Tabl 5)

Discussion

Comparing the severity of PTSD based on revised Persian Mississippi scale, 5.5% of the children with parents affected by chemical agents had severe levels and 93% had moderate levels of Post-traumatic stress disorder, compared to 2% and 70% respectively, in the control group. All 4 PTSD criteria (Penetrating memories, Problem in personal relationships, inability in controlling emotional feelings, and lack of depression) were more among chemical warfare victims. There was no significant difference between the score of Mississippi scale among different age or sex groups in our study.

In reviewing literature, no article had been published to work on PTSD among children of chemical warfare victims. But there are some studies which show more psychological disorders among children of veterans compared with the control groups. In studies conducted by Kalantari (1993), Fairbank (1993), Rutter and their colleagues (1984), children of veterans were more likely to show psychological disorders and PTSD. The most common form of these disorders was ADHD.

A study conducted by James (1983) revealed that teenagers with a parent affected mentally (with essential emotional disorder or schizophrenia) showed more psychological disorders than the others. Radfar et al conducted a study about the children of veterans with mental disorders and concluded that their sense of wellbeing was less than the children of veterans without any mental problem. They justified high prevalence of psychiatric symptoms in their study group to be due to the problems and stressors of fathers which not only affect the veteran himself, but also his family. (Radfar et al., 2005)

All these studies reveal the impact of parents with physical and mental disorders on children which is consistent with our findings. In the study conducted by Rutter and Quinton (1984), Earls (1976), and their colleagues, Female children of war veterans were more affected by PTSD than male children, yet our study revealed no significant difference in Mississippi scores between different age and sex groups.

Of course this town has had some levels of other stressors, including natural disasters and unemployment. Unemployment of family superintendent could make mental and psychological problems by means of lowering socioeconomic status. But all mentioned stressors are equal for the case and control groups in our study.

This study suggested more attention and cover for the children of chemical warfare victims and generally for the children of veterans.

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Table Number 1) Stress disorder rates (Mississippi score) in different age groups

Age groups	Mean	St. Error	P-value
<20 years old	129.09	1.14	0.708
21-30 yrs old	128.53	1.38	
31-40 yrs old	129.20	3.13	
41-50 yrs old	134.50	2.15	

Table Number 2) Sex and Mississippi score in two sex groups

Sex	Mean	St. Error	P-value
Female	130.31	1.16	0.667
Male	127.15	1.23	

Table number 3) Severity of PTSD according to the Mississippi score in Case and Control group

Mississippi Score		Low	Moderate	High
Case Group	Frequency	4	254	15
	Percentage	1.5%	93%	5.5%

Table Number 4) Frequency and Severity of PTSD according to the Mississippi Scale

Mississippi Score			Low	Moderate	High
Penetrating Memories	Case	Frequency	36	160	81
		Percentage	13%	57.8%	29.2%
Problem in Personal relationships	Case	Frequency	62	205	15
		Percentage	22%	72.7%	5.3%
Problem in controlling emotional feelings	Case	Frequency	19	203	64
		Percentage	6.6%	71%	22.4%
Lack of depression	Case	Frequency	17	112	144
		Percentage	6.2%	41%	52.7%

Table Number 5) Distribution of Post-Traumatic Stress Disorder among children of chemical warfare victims based on father’s Morbidity percentage according to Bonyad-Janbazan Morbidity Index.

Father’s Morbidity	Children’s Mississippi score	P-Value
<20%	129.12±1.45	> 0.05
20-30%	127.64±1.53	
30-40%	125.03±1.94	
>40%	138.26±2.80	