Anniversary Reactions in Gulf War Veterans: A Follow-Up Inquiry 6 Years After the War

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Objective: The goal of this study was to assess the occurrence of anniversary reactions in Gulf War veterans 6 years after the conclusion of the war. **Method:** Subjects were administered questionnaires and asked to identify specific months of best and worst functioning and months of least or most symptoms of posttraumatic stress disorder (PTSD) for the 12 months before the study. Months of negative experiences were compared with previously documented dates of exposure to traumatic events during the war. Similar reports were also obtained from the veterans' spouses in order to assess corroborative evidence for the occurrence of anniversary reactions. **Results:** Anniversary reactions occurred with a frequency greater than chance and most often in individuals exposed to a greater number of traumatic events. Overall, spouse reports matched the veterans' reports of anniversary reactions. In addition, spouses identified anniversary reactions that were not endorsed by their veterans. **Conclusions:** These data suggest that anniversary reactions occur in numbers greater than those expected by chance, are correlated to the occurrence of traumatic events, and may be a part of the syndrome of PTSD.

(Am J Psychiatry 1999; 156:1075–1079)

An anniversary reaction has been described as a specifically timed, emotionally invested episode during which an individual experiences significant psychiatric or medical symptoms (1). It has been theorized that individuals suffering from such reactions have been sensitized by exposure to a specific traumatic event and that the effects of this sensitization are experienced later under circumstances that are reminiscent of the event. A review of the literature suggests that authors have differed quite significantly in their opinions about which circumstances or triggers are more important in precipitating anniversary reactions. While some have placed emphasis on the patient's age, others have focused on the date and nature of the stressful event (2–6). Regardless of emphasis, there is a consensus that the patient's distress is meaningfully connected to a specific, previously experienced traumatic event (1, 2, 4, 7–10).

Despite limited empirical data on anniversary reactions, it has become routine for many war-related posttraumatic stress disorder (PTSD) treatment programs to ask veterans about combat traumas and corresponding annual exacerbations of psychiatric symptoms (personal communication from American Lakes Program, Tacoma, Wash.; PTSD Program, Veterans Administration [VA] Medical Center, West Haven, Conn.; PTSD Program, Menlo Park VA Medical Center, Palo Alto, Calif.). It is believed that by learning about and recognizing anniversary dates, veterans can better understand, and control, their psychological distress. Models of treatment meant to prevent relapse instruct patients to anticipate anniversaries so that PTSD symptoms can be dealt with more effectively.

To date, only two longitudinal studies have empirically examined the timing of, and the symptoms experienced during, anniversary reactions to traumatic events. In the first, Borstein and Clayton (11) interviewed 92 widows and widowers on the first anniversary of their spouse's death and identified anniversary reactions in four subjects. Each subject suffered from clinically significant depression and identified the anniversary date as the nidus of his or her psychological distress. While the study is promising, it has been difficult to interpret the precise meaning or implication of these data, since the incidence of anniversary reactions in this study is well within the range of occurrences that would be expected by chance (N=7.6).

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In the second study (12), we investigated the frequency of anniversary reactions in a group of Gulf War veterans 2 years after the war. Veterans were invited to report on their psychological symptoms during the year (12 months) before their participation in the study. Each was asked to select, if applicable, the month during the previous year when he or she felt the worst and the month, if applicable, when he or she experienced the most stress symptoms (i.e., the specific PTSD symptoms according to DSM-III-R). If either of these months corresponded with the date during which a veteran experienced his or her most traumatic event while in the Persian Gulf, then the veteran was identified as having an anniversary reaction. Of the 59 subjects who participated in the study, 18 had anniversary reactions, twice the number that would be expected by chance. Moreover, veterans with anniversary reactions were more symptomatic on measures of PTSD compared with veterans who did not have anniversary reactions. This study was limited by the absence of third-party reports and by the fact that the veterans were asked about functioning and dates of trauma in the same setting.

The present study is a follow-up to our previous investigation of anniversary reactions in Gulf War veterans. It is also part of a larger investigation that has focused on the evolution of trauma-related symptoms in Gulf War veterans (13, 14). Using questionnaires based on DSM-III-R nosology, the current study evaluated the relationship between traumas experienced during the Gulf War and the timing and nature of postwar psychiatric distress.

More specifically, the current follow-up investigation was designed to evaluate whether anniversary reactions would still be present in the individuals who had them at the 2-year evaluation, determine whether the occurrence of anniversary reactions at 6 years would exceed that expected by chance, assess whether anniversary reactions would be found in individuals with greater levels of PTSD symptoms, and understand the relationship between the reports provided by the veterans and those provided by the veterans' spouses. The rationale for examining the relationship between anniversary reactions and the level of PTSD symptoms was based on the findings of a previous study indicating that individuals with anniversary reactions also exhibited more PTSD symptoms (12). Self-report data were compared with spouse report data in order to evaluate whether anniversary reactions were observable by others.

In order to minimize bias in their reporting, the veterans were not asked about, nor asked to provide a date of, trauma. Instead, this information was obtained from the initial questionnaires completed by the veterans in May 1991—1 month after their return from the Gulf War.

METHOD

The subjects of the study were a subgroup of 119 soldiers, who, during their first monthly training session after the Gulf War, were recruited from two Connecticut Army Reserve units (the 142nd Medical and the 143rd Military Police) to participate in a longitudinal study of war-related symptoms (14, 15). Fifty-nine soldiers continued to participate in the longitudinal study at 2 years and were the subjects of our previous investigation of anniversary reactions to war-related stressors (12). Thirty-two of the 59 were available at the 6-year time point. Each had been a subject in previous investigations at our site (12–14). Subjects were contacted by telephone and agreed to participate in the current investigation. All subjects gave written informed consent.

Measures

As reported in the investigation of the 2-year time point (12) to assess emotional functioning within the past 12 months, subjects were asked to indicate during which month of the previous year they had felt the best and during which month they had felt the worst. Additionally, each subject was asked to indicate during which month, if any, he or she experienced the most stress-related symptoms—i.e., the 17 symptoms of DSM-III-R for PTSD. Subjects also rated the month during which they experienced the least stress-related symptoms.

The initial questionnaire was administered in 1991, 1 month after their return from the war. Subjects had been asked to give the date and description of the most traumatic event they had experienced during their tour in the Persian Gulf. In this report, unlike in the previous report, subjects were not asked about the date of their most traumatic event so as not to create bias. Instead, the date noted in their original 1991 surveys, which specified his or her most traumatic event, was used to determine the presence or absence of anniversary reactions.

As in the earlier investigation, an anniversary reaction was defined as either 1) a match between the month of the most severe war-related traumatic event and the month identified as worst during the previous year or 2) a match between the month of the most severe war-related traumatic event and the month during which PTSD specific symptoms were most prominent. All subjects completed the questionnaires as well as the interviews during August and September 1997. Neither of these months corresponded to the dates of military deployment or to exposure to military trauma.

Subjects were also administered the PTSD Symptom Scale (13, 14), a valid self-report inventory consisting of 35 items derived from DSM-III-R. It provided a measure of both frequency and intensity of PTSD symptoms within the 30 days before participation in the study. After completing the questionnaire, subjects participated in a direct interview with the principal investigator (C.A.M.). Each was asked about his or her responses to the questionnaire in order to gain a more complete understanding of the nature of the responses.

Finally, married subjects or those who lived with a significant other were given a questionnaire for his or her spouse or significant other to fill out without the veteran's assistance. The questionnaire was identical to the one given the veterans, except that it asked the spouse to identify which months, if any, over the past year the veteran had felt the best and the worst and had experienced the least and most symptoms of stress.

Data Analysis

Since an anniversary reaction was defined as either a match between the date of most severe trauma and the month of feeling worst or a match between the date of trauma and the month of greatest PTSD-specific symptoms, there was a two in 12 (17%) probability that an anniversary reaction would exist by chance alone. The number of anniversary reactions within the group as a whole, and within each unit, was compared with this probability factor in order to determine whether these matches occurred at a greater frequency than that expected by chance.

Data from the 6-year time point were compared with data from the 2-year time point in order to determine whether identified cases

were new or chronic in nature. Comparisons between the 2- and 6-year data also permitted a determination as to whether any of the identified anniversary reactions at 2 years no longer existed at 6 years. We performed t tests between the total PTSD Symptom Scale scores to determine whether individuals with anniversary reactions differed from unit members without anniversary reactions.

Finally, spouse reports were examined in order to determine whether there was agreement between the veteran and his or her spouse about the existence of anniversary reactions. The number of anniversary reactions identified by the spouse only—and not the veteran—was also calculated.

RESULTS

In the total group (N=32), the observed number of subjects who had an anniversary reaction at 2 years was 12. The observed number of subjects in the group who had anniversary reactions at 6 years was also 12 (38%). This was more than twice the number of occurrences (N=5.4, 17%) that would be expected by chance alone. Eight of the 12 cases identified at the 6-year time point represented chronic cases, whereas four were new.

Within the group of 20 subjects who were from a medical unit, one would expect 3.4 anniversary reactions by chance alone. By contrast, 10 subjects selected a month corresponding to his or her previously identified date of trauma. This occurrence was three times greater than that expected by chance. Similarly, in the group of subjects from a military police unit (N=12), one would expect two anniversary reactions because of chance alone. Within this group, only two subjects selected a month corresponding to their identified date of trauma. Thus, the occurrence of anniversary reactions was greater than that expected by chance in the group of veterans as a whole and in the group from the medical unit but not in the group from the military police unit.

Comparisons of the total PTSD scores between the group of individuals with anniversary reactions and the group without anniversary reactions (mean=12.7, SD=12.6, and mean=5.8, SD=1.3, respectively) revealed a statistically significant effect of group ($t=-2.07$, $df=30$, $p<0.05$). Thus, individuals with anniversary reactions had more symptoms of PTSD than those who did not have anniversary reactions. In the group as a whole, only four (12.5%) of the 32 subjects met the criteria for PTSD on the PTSD Symptom Scale. All four of these subjects with PTSD were identified as having anniversary reactions.

In 11 of 12 subjects with an anniversary reaction, the associated trauma involved witnessing the death or serious injury of another human being. Exposure to mines while in a war zone constituted the associated trauma for the remaining subjects who had anniversary reactions.

Thirteen of the 32 subjects were married. Of these, five reported anniversary reactions. Four of the five respective spouses matched their veteran's report and identified their veteran as suffering from an anniversary reaction. The spouse whose report did not match that of her veteran identified her husband as suffering from an anniversary reaction during the month of February—not January, as the veteran had indicated. This appeared to be a negative finding. However, examination of the veteran's narrative description of his worst trauma, which was logged in his January 1991 questionnaire, revealed that he had incorrectly paired his date of trauma (January 1991) with an incident that was documented by the military (and by other members of his unit) to have occurred during the month of February 1991. Thus, by his own report, he suffered from an anniversary reaction during the month in which he believed the incident had occurred, whereas by his wife's report, he suffered an anniversary reaction during the month of February—the month during which the trauma had actually occurred.

Four of the married subjects who did not personally endorse one were identified as suffering from an anniversary reaction by his or her spouse. None of these veterans had previously endorsed anniversary reactions at the 2-year time point, and each was from the military police unit. When these veterans were asked about the apparent inconsistency between their data and those provided by their spouse, each suggested to the interviewer that the spouse's report was a more accurate description of his or her behavior. If these third-party spouse reports are considered equal in validity to those given by the veterans where anniversary reactions are concerned, nine (69%) of the 13 married subjects would be identified as suffering from anniversary reactions. Such a percentage would represent a sizable (albeit speculative) increase from that calculated from self-report data alone (31%–38%).

The most frequently endorsed symptoms of PTSD that were identified by veterans as being associated with an anniversary reaction were irritability, sleep disturbance, intrusive memories, efforts to avoid thinking about the war, emotional numbness, and reactivity to reminders of war-related events. The spouses did not mention symptoms of memories, intrusive thoughts, or avoidance of thinking but instead endorsed (in descending frequency) irritability, sleep disturbance, emotional distance, emotional numbness, and reactivity to reminders of war-related events. Thus, the spouses reported what might be considered more objective symptoms of PTSD compared with subjective items such as intrusive memories. This supports the idea that the reports provided by the spouses are valid and not simply copies of the veterans' reports.

Only three subjects (9%) selected a feeling-best month and one subject (3%) a least-symptoms-of-stress month that corresponded to their previously reported dates of most severe trauma. This frequency of endorsement is cumulatively less than that expected by chance alone (17%) and supports the idea that anniversary reactions are predominantly distressing experiences.

Of note, no significant differences were observed when comparing total PTSD Symptom Scale scores between the subjects who dropped out of the study (N=27) and those who remained in the study at the 6-year

with the concept of anniversary reactions in mind. Clinicians and patients might reasonably expect that at least 30% of trauma-exposed individuals have a likelihood of experiencing or exhibiting significant psychiatric distress (including more symptoms of PTSD) on the anniversary of their trauma. Clinicians and patients might acknowledge the trauma-related source of the distress rather than assuming that the patient's distress reflects a non-trauma-related contemporary issue. This understanding might result in a therapeutic clinical focus on the index trauma and the corresponding symptoms of reexperiencing (36, 17).

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