Unexplained Suffering in the Aftermath of War

In 1990, military forces from Iraq invaded and occupied Kuwait and massed at the Saudi Arabia border. Early in 1991, an international alliance led by the United States attacked Iraqi forces and rapidly drove them back into Iraq. More than 500,000 U.S. personnel were involved in the Gulf War military action. Approximately 300 were killed and 500 were wounded—remarkably low numbers for a force of that size.

But the end of hostilities was not the end of the story. By the end of 1991, many Gulf War veterans felt unwell. They reported various persistent and debilitating symptoms. Both the U.S. Department of Defense and the U.S. Department of Veterans Affairs created registries of ailing combatants from the Gulf War. The most commonly reported symptoms were fatigue, rashes, headache, muscle and joint pain, and memory impairment (1, 2). Disability claims mounted. By 2001, nearly 20% of personnel deployed to the Gulf War were receiving some form of disability compensation (3).

Was the Gulf War, in fact, associated with an unusual burden of chronic multisymptom reports? Data from the registries could not answer that question, since the individuals in the registries were self-selected. Therefore, the U.S. Department of Veterans Affairs initiated several large population-based studies.

The studies—conducted in the United States (4, 5), the United Kingdom (6, 7), Canada (8), and Denmark (9)—shared certain features. Each study identified a large random sample of combatants from all branches of the armed forces who had been deployed to the Gulf War and a similarly large random sample of armed forces personnel who had served during the same years but had not been deployed to the Gulf region. The sampling was stratified to ensure that the study populations included enough participants in important subgroups, such as women.

Each study found that armed forces personnel deployed to the Persian Gulf region were statistically significantly more likely to report chronic, debilitating symptoms than personnel deployed to other areas. The 2 studies (5, 6) that also evaluated functional status and employment found greater impairment in the Gulf War combatants. The results were similar among men and women and among Gulf War combatants who did not see much combat, such as forces stationed on vessels offshore.

While armed forces personnel deployed to the Gulf War were more likely to report debilitating chronic symptoms, their subsequent rates of hospitalization (10), birth defects in offspring (11), or mortality (12) were no higher than rates in comparison populations. Several studies reported higher rates of post-traumatic stress disorder (4, 6, 8) among Gulf War veterans.

What exposures might have precipitated the chronic symptoms among Gulf War personnel? The evidence is murky, and controversy persists. Gulf War personnel were (or could have been) exposed to many substances that theoretically could have produced chronic tissue damage: solvents, insecticides, smoke and other combustion products, radiation from depleted uranium, agents of chemical warfare (irreversible anticholinesterase inhibitors, such as sarin), and pyridostigmine bromide (a reversible anticholinesterase inhibitor taken to prevent the effects of sarin). They were exposed to unusual indigenous infectious agents, such as leishmaniasis, and could have been exposed to agents of biological warfare. Finally, they received an exceptionally intensive battery of simultaneously administered immunizations, which some believe could have produced chronic debility.

Unfortunately, accurate records of each combatant’s exposure to these various agents do not exist. An armed force mobilizing for and conducting a war has higher priorities than measuring the amount of exposure to the ecosystems of war. Thus, the studies that have examined associations between various chronic symptoms and various possible exposures have had inherent limitations. Two committees convened by the Institute of Medicine to examine the available evidence could not identify any links between symptoms and environmental agents, largely because they had no measurements of the amount of the veterans’ exposure (13, 14).

Whatever its cause, was there a unique Gulf War syndrome? While evidence strongly suggests that Gulf War combatants experienced an increased frequency of various chronic, debilitating symptoms, little evidence suggests that they have a unique syndrome. Indeed, as Hyams and colleague previously chronicled (15), the medical literature in the years after each U.S. armed conflict contains reports of similar unexplained symptoms.

In this issue, the report by Eisen and colleagues (16) extends previous studies. Conducted by the U.S. Department of Veterans Affairs, this large cross-sectional prevalence study measured the prevalence of chronic illness among Gulf War combatants and a control group of veterans who were not deployed. Conducted 10 years after the war, the study supplemented symptoms reported by the veterans with extensive physical and laboratory examinations. Eisen and colleagues report that functional status was worse among deployed participants; however, while statistically significant, the magnitude of the difference was small. The study found that deployed veterans reported dyspepsia, a group of common skin conditions, fibromyalgia, and the chronic fatigue syndrome much more often than the nondeployed control group. The association was most striking for the chronic fatigue syndrome: The odds ratio was 40.6. Abnormalities on physical examination and most common laboratory tests occurred at the same rate in the 2 groups.

In summary, we have robust evidence that armed forces
personnel from several countries who were deployed to the Gulf War in the early 1990s have been more likely to report debilitating symptoms than armed forces personnel deployed elsewhere during the same time. We don’t have any convincing evidence that this constellation of symptoms constitutes a unique syndrome. Indeed, the symptoms are very similar to those of fibromyalgia and the chronic fatigue syndrome and those reported after previous armed conflicts.

What might be the causes of this illness? No physical or psychological cause has been convincingly demonstrated. There are several interesting theories, some with preliminary data to support them. One hypothesis is that the immunization battery created a shift in cytokine balance toward an excess production of Th2 cytokines (17). The theory has some empirical support, in both Gulf War veterans (6, 18) and in patients with the chronic fatigue syndrome (19). Another theory with experimental support from mouse studies is that the stress of war chronically alters the neurochemistry of acetylcholine, causing some symptoms of the illness (20). One research group has reported that self-reported exposure to neurotoxins was more frequent in Gulf War veterans and that objective abnormalities were found on various tests of the central nervous system (21). Other scientists must confirm these small studies before they deserve much credence.

How can we better understand the causes of this illness? Two reports from the Institute of Medicine (13, 14) suggest the following: First, establish systems to reliably record immunizations given to military personnel. Second, closely monitor the health of armed forces personnel during conflict regardless of whether physical injuries have occurred. Third, perform similar health assessments simultaneously on randomly chosen and matched personnel who were deployed to a noncombat zone. Fourth, routinely monitor various exposures during combat.

Some critics may argue that conducting such studies is unrealistic when an armed force is engaged in war. However, a country that sends its young people to war has an obligation to study all illnesses that occur in the aftermath of war, not just traumatic injury. An illness like the Gulf War syndrome has been chronicized after every conflict since the Civil War, yet no systematic attempts have been made to understand it. Our armed forces deserve far better. Whatever the cause, the suffering is real.

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References

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