

Undiagnosed Illnesses and Radioactive Warfare*

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The internal contamination with depleted uranium (DU) isotopes was detected in British, Canadian, and United States Gulf War veterans as late as nine years after inhalational exposure to radioactive dust in the Persian Gulf War I. DU isotopes were also identified in a Canadian veteran's autopsy samples of lung, liver, kidney, and bone. In soil samples from Kosovo, hundreds of particles, mostly less than 5 µm in size, were found in milligram quantities. Gulf War I in 1991 resulted in 350 metric tons of DU deposited in the environment and 3 to 6 million grams of DU aerosol released into the atmosphere. Its legacy, Gulf War disease, is a complex, progressive, incapacitating multiorgan system disorder. The symptoms include incapacitating fatigue, musculoskeletal and joint pains, headaches, neuropsychiatric disorders, affect changes, confusion, visual problems, changes of gait, loss of memory, lymphadenopathies, respiratory impairment, impotence, and urinary tract morphological and functional alterations. Current understanding of its etiology seems far from being adequate. After the Afghanistan Operation Anaconda (2002), our team studied the population of Jalalabad, Spin Gar, Tora Bora, and Kabul areas, and identified civilians with the symptoms similar to those of Gulf War syndrome. Twenty-four hour urine samples from 8 symptomatic subjects were collected by the following criteria: 1) the onset of symptoms relative to the bombing raids; 2) physical presence in the area of the bombing; and 3) clinical manifestations. Control subjects were selected among the symptom-free residents in non-targeted areas. All samples were analyzed for the concentration and ratio of four uranium isotopes, ^{234}U , ^{235}U , ^{236}U and ^{238}U , by using multicollector inductively coupled plasma ionization mass spectrometry. The first results from the Jalalabad province revealed urinary excretion of total uranium in all subjects significantly exceeding the values in the nonexposed population. The analysis of the isotopic ratios identified non-depleted uranium. Studies of specimens collected in 2002 revealed uranium concentrations up to 200 times higher in the districts of Tora Bora, Yaka Toot, Lal Mal, Makam Khan Farm, Arda Farm, Bibi Mahro, Poli Cherki, and the Kabul airport than in the control population. Uranium levels in the soil samples from the bombsites show values two to three times higher than worldwide concentration levels of 2 to 3 mg/kg and significantly higher concentrations in water than the World Health Organization maximum permissible levels. This growing body of evidence undoubtedly puts the problem of prevention and solution of the DU contamination high on the priority list.

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