

Could stress be the underlying cause of the "Balkan syndrome"?

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We would like to draw the attention to our studies of the health damaging consequences of war stress (experienced during the 1991/1992 war in Croatia) and point to stress as a possible cause for an unexpectedly large number of soldiers developing leukaemia and other illnesses who took part in NATO operations in the Balkans.

There is a growing number of reports that the health disorders of NATO soldiers may be attributed to weapons containing depleted uranium. However, the rationale for such non-expert interpretation is based on speculation, raising untimely concern, both among the Balkan peoples and among NATO soldiers.

We are fully aware of the detrimental effects of radiation, yet depleted uranium is of such a low radioactivity that it is very unlikely that its radiation could account for the rapid development of leukaemia. Even if inhaled or ingested, the harmful effects would resemble heavy metal poisoning. The high incidence of leukaemia among soldiers alerts serious concern and prompts the search for other causes than radiation.

For a number of years it is known that stress is an important factor in the development of numerous diseases, from simple virus infections and gastric ulcers, to cardiovascular diseases, cancer, psychological and fertility or pregnancy disorders¹. We have examined the frequency of various diseases during and immediately after the 1991/1992 war in Croatia, in which 14,000 people were killed, about 45,000 injured and 400,000 displaced. Contrary to Bosnia and Yugoslavia, where over 40,000 rounds of depleted uranium ordnance were fired by NATO in 1995 and 1999, respectively, the war in Croatia, initiated by the Yugoslav Army aggression, was fought without weapons containing depleted uranium. This war triggered a significant increase in the incidence of some diseases², though the overall quality of health care remained roughly unchanged. For example, the incidence of leukaemia doubled from 2,710 cases to 5,430 from 1990 to 1993, and steadily declined thereafter. In fact, there was a 46%

increase in hospital entries related to tumours of the lymphoid tissues within a year after the beginning of the war. The incidence of many other diseases, however, remained at pre-war levels.

If experiencing the adverse effects of war by living in Croatia during 1991 and 1992 provided a sufficient stimulus to double the frequency of leukaemia, it is likely that the impact on individuals who were directly involved in military activities or witnessed war atrocities, as did the UN troops in Bosnia, or NATO forces in Yugoslavia, would be at least as prominent.

The synergetic effect of severe stress and individually preconditioned vulnerability underlay many illnesses. Although we do not aim to suggest that depleted uranium (or any other agent) should be excluded as a possible danger, we believe that a significant part of the increase in leukaemia among NATO soldiers should be attributed to stress.

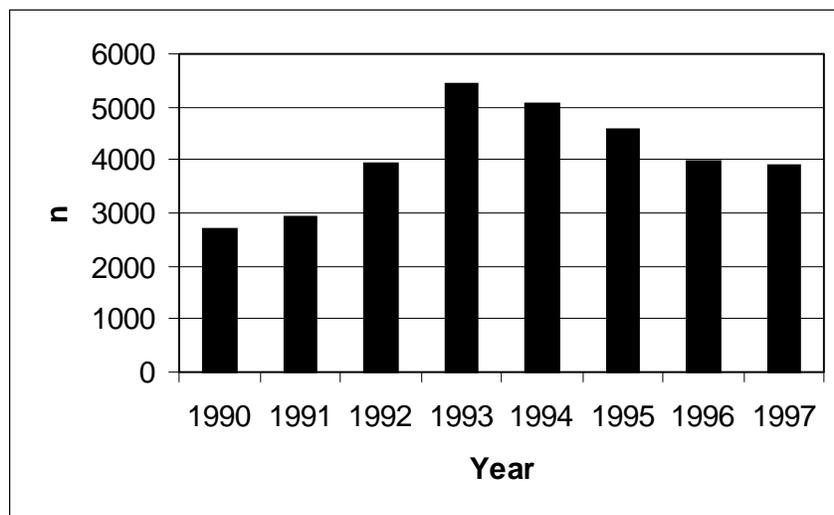


Fig.1. Incidence of tumours of lymphoid tissues in Croatia after the 1991/1992 war (Number of diagnosed cases in General Medical Service as reported in the official Croatian Health Service Yearbooks).

1. Stress: Basic Mechanisms and Clinical Implications (eds. Chrousos, G.P., McCarty, R., Pacak, K., Cizza, G., Sternberg, E., Gold, P.W. & Kventnansky, R.) Annals of the New York Academy of Sciences 771 (New York Academy of Sciences, New York, 1995).
2. Flögel, M. & Lauc, G. War Stress in Former Yugoslavia in Encyclopaedia of Stress Vol.3 (ed. Fink, G.) 678-683 (Academic Press, San Diego, 2000).

