Art of killing?

Safaa Bahjat

Correspondence:
Dr Safaa Bahjat
Kirkuk, Iraq
Email: dr.safaabahjat@hotmail.com

Iraq within the past three decades has been subjected to 3 large wars and to off and on military episodes in between. Recently another open end war was launched against the ISIS and the output is the same: senseless killing, abject suffering, large-scale displacement , and unprecedented destruction are occurring every day .The daily bloodshed devalues all people, not just those directly engulfed in it. This realization contradicts the guilt-relieving notion that there is nothing to be done.

With bitterness we recall the 23rd anniversary of the Desert storm battle outbreak and particularly the crime of using Depleted Uranium (DU)which was potentially involved in the recent upsurge of malignancies in populations exposed to war dust.

It is well-known that weapons containing natural uranium (NU), that is, 'nuclear weapons' are disqualified due to their radioactivity, prompt mass destructive power, and long lasting genotoxicity, which has a sustained effect through generations. However, as DU has not been globally and legally well-identified and studied, and as it formed a heavy disposal task on the nuclear industry, this allowed it to leak to the traditional weapon industry for deeper destructive effects instead of being buried costly in nuclear graveyards. In light of new reports tackling the disastrous outcome of DU on the health of exposed populations, a question arises, as to which extent may the weapons containing DU yet be considered conventional, and does DU still retain similarities with the "maternal" NU, regarding the toxic and carcinogenic effect, which the latter has. It is important here to be reminded of the biodata of NU and DU. On average, approximately 90 (micrograms) of uranium exists normally in the human body, this is gained from normal intakes of water, food, and air. Approximately 66% is found in the skeleton, 16% in the liver, 8% in the kidneys, and 10% in other tissues. (http://www.who.int/mediacentre/factsheets/fs257/en) However, DU is a nuclear exhaust born as a byproduct of Uranium impregnation in the nuclear industry, and almost completely formed from Uranium-238 (U238),which has a 60% radiation power of NU. Physically, NU and DU consist of a mixture of 3 radioactive isotopes but in different ratios; NU contains U238 (99.27% by mass), U235 (0.72%), and U234 (0.0054%), whereas DU contains approximately 99.8% U238, 0.2% U235, and 0.001% U234 by mass. The main difference between DU and NU is that the former contains at least 3 times less U235 than the latter. Table 1 shows the half-lives and the specific activity of the 3 isotopes of NU and DU, the average energies per transformation emitted by these isotopes, and the percentages of isotopic abundance by weight and activity of NU and DU. (Data derived from URL: http://www.who.int/mediacentre/factsheets/fs257/en).

The DU behaves chemically, physically, and toxicologically similar to NU. As it was found to still retain an extra penetrative and destructive effect, it is presently involved in the manufacture of high-powered smart bullets/missiles, and thus it entered the armory of the arsenal as an anti-tank shell agent. Uranium-238 is pyrophoric, bursting after shooting into flame with 70% of the shell aerosolized into respirable particles less than 5 microns in diameter. Most DU particles are dispersed as dust on earth, which when it rains, penetrates into the soil to contaminate water resources, and consequently agricultural products. Uranium-238 is an alpha radioactive emitter. On degradation, it shoots mainly alpha, and to a lesser quantity beta particles. Man, in and around the battle field, is exposed to DU hazards by radiation, inhalation, swallowing, and wound contamination. In the human body, DU is nephro-toxic; it is mostly excreted via the kidney causing acute nephritis, however, it is also excreted in the semen, and uranyl ions infiltrate the testes, ovaries, placenta, embryo, and central nervous system. Naturally, children are more susceptible to radiation induced cancers than adults.

A mainstay report published in Saudi Medical Journal in 2003 by Al-Waiz et al from Baghdad University clearly shows that (Kaposi Sarcoma) KS has recently made an upsurge in southern Iraq, and it behaved in these particular cases quite divergently compared with the well-known classic KS, which existed before sporadically in Middle Eastern people including Iraqis. The report concluded that this KS outbreak might have been provoked and/or boosted by DU fallout. The differences between the new Iraqi KS outbreak and the known classic type may be concluded in:

1. Age: the mean age of patients in these series was 54 years compared with 68 years in classic KS, thus these patients were 14 years younger than the classic KS patients, that is, 14 years earlier presentation.

2. Advanced presentation: classic KS usually presents as macular lesions and progresses very slowly to plaques or nodules, but the disease in all these patients presented directly in the advanced plaque and nodular stage, none was in the macular stage. This is a major deviation from the classic KS, which

suggests a rather aggressive nature, and more rapid course probably related to a new potential factor.

3. Visceral involvement: KS patients (25%) had lung and liver involvement, and 10% of them had lymph node involvement within a short period of the disease course. Considering that the visceral dissemination occurs very lately and infrequently in classic KS reflects again a comparatively more florid type of KS than the classic one.

4. High mortality rate: The mortality rate was 15%, and death was due to systemic dissemination of the tumor. Whereas, classic KS patients enjoy a rather normal life span, approximately 10-20 years in average and death is very rarely related to KS.5. The southern geographic predilection: one case of KS only came from northern Iraq, which is comparatively calm and far from the battle field, versus 15 cases that came from the central Baghdad region, and 4 that came from the south; this suggests some geographical polarization of KS distribution consistent with the battle field - Baghdad and south Iraq. Considering that Baghdad is relatively closer to the south increases the polarization to one case north versus 19 middle/south.

This southern:northern ratio of KS cases is far bigger than that of the populace distribution. The northern people alone are approximately 8 million. From the Wikipedia almost 75% of Iraq's population lives in the flat, alluvial plain stretching southeast from Baghdad to Basra, and the Arabian Gulf. Possibly, approximately one quarter of Iraqi population lives in the north, and one KS case came only from the North, and 19 from the Midsouth. This inconsistent geographical distribution of KS cases which are not parallel with the populace distribution suggests a Southern related factor incriminated in KS epidemic, and it existed in the Middle South, that is the focus of the battle field during successive wars. 6. The epidemic occurrence: This is highlighted via a cluster of 20 KS cases diagnosed within a short (one year) period, and perhaps, this number has jumped up later. Literature review shows that this compact episode of KS is probably the first recorded in Iraq, and in all the neighboring countries. Fortunately, there was an Iraqi study of 21 cases of classic KS 15 years before, that is, before the Gulf war era but with a quite different clinical behavior. Thus, the current report involves almost the same number of patients but within a tenth of the period of the previous study.

Reports from southern Iraq have documented a steep rise in the incidence of cancers since the 1990s, especially in children. According to the Cancer Treatment Centre of Basra, in the far Southern Iraq and the focus of the Gulf wars, local cancer incidence raised from 11 cancers per 100,000 in 1988 to 75 in 1998, and 116 in 2001, approximately 11 fold in 13 years, rising almost one fold each year. In Fallujah, Busby et al found that the results qualitatively support the existence of serious mutation-related health effects as 80 deaths per 1,000 births were reported in Fallujah compared with only19.8 in Egypt. Caldicott recalled the mechanisms, by which depleted uranium induces mutations and cell damage. Cells are attacked directly and indirectly by DU. The alpha rays hit the DNA molecules resulting in direct damage to the chromosomes, although this damage is not stationary, it passes via generations posing genomic instability of the damaged cells. Additionally indirect bystander effect occurs to the intact adjacent cells by uranyl ions, which bind avidly to DNA-clumped chromatin causing DNA damage and chemical toxicity, hence, their mutagenic capability. Hamilton inquires why adequate measures were not taken to ensure that good scientific evidence for later use was obtained at the onset of both Gulf and Balkan conflicts. It is possible that at the time of confrontations, circumstances were not fit, there were political or military limits, which made the recurrent publication and media comments on these events decades after their occurrence just serve in dissolving the confidence of the general public. Possible, however the lack of publication and media coverage serves also to obscure the problem rather than solving them, whereas it continues to exist inconspicuously with extra potential human sufferers. For fairness, it is worth mentioning that some studies showed leniency with DU and did not refuse using it in military, for instance, Patel in his article "Health in the Middle East: No strong link between depleted uranium and cancer", and McDiarmid ("Depleted uranium and public health. Fifty years study of occupational exposure provides little evidence of cancer") but circumstances of both are quite different. Uncontrolled occupational exposure is quite different from haphazard permanent residence of the whole society, including children and pregnant women inside the contaminated field. Yet, the authors could not deny the existence of an insidious link or evidence of malignant relation between DU and cancer, the term they used -no strong "link" - and -little "evidence" - ascertains the presence of a "link" with, and an evidence of cancer rather than denying it.

It is not the size of the "evidence" or the "link" between DU and cancer which accounts in human affairs, but the link itself; it is incriminated even if it kills one man only. Size can act in the field of materials not in humans.

We, in the medical field feel it is part of our medical mission and educational deputation as pioneering medical media in the region, to notify any malpractice against human health or life, share in protecting the common people from mass health disruption, and send a plea to whom it may concern, such as the WHO, United Nations, the Green Groups, and all concerned health authorities requesting them to consider research reports regarding KS originated from the Gulf and Balkan region as work paper, which is worthy of further investigation and follow up, that is:

1. Perform epidemiological studies with control groups and further mass population screening for any uprise in mortality and morbidity in general, and malignancy in particular and around the battle fields, prospectively and retrospectively, to document the old cases and discover the new ones as early as possible in order to have a larger statistical database to depend on in the next steps.

2. Perform further in vitro laboratory research and animal studies -although not ideal with battle field medium to clear any suspicion regarding DU - human health relation on radiological, toxic, and molecular basis. 3. Until a final conclusion is issued, to ban the use of DU in any means until full knowledge of its safety and hazards is evident. Military experts should obtain a safety certificate of DU before taking it to the field but not after. Safety should never be proved retrospectively or provisionally, as long as man is not a laboratory rat to start with

in death trials, and as long as prevention is better than cure as we always say, noticing that once DU is blasted, it will never vanish, it will finally pollute the water, agriculture, and human life in an everlasting circle.

International health authorities who care should undergo regular check up on the factories of death materials to see what is up, they should not wait and see, but should move -prophylactic wise- there to face the death engineers in the pre-manufacturing stage in order to control the obsessive killing drive in that media, and suppress the explosive fatal craving. Performing all these preventive measures is crucial -particularly at this very time with new launch of wars, in order to clear the relation between DU and uprising malignancies, and to clean this perpetual hazardous contaminant of human life. When NU is disqualified for its non-conventional mass destructive effect, DU with 60% radiation of NU, and with everlasting environmental contaminating effect is a genuine suspect, it should not at all be justified and passed, and should not be simply considered as conventional until proven otherwise by unbiased evidence-based science. There seems to be a thick wall separating militarists and health preachers. Each is working separately and independently, one with death and the other against it, without minimal coordination and harmony. This wall should be knocked down so that they might work together like a smart surgical team when this does a legal operation. Yes, bombs are made to kill, but they should not do this randomly, they should first earn a health certificate before going to war and before killing. Materials involved in them should not be used until safety measures are confirmed, and preserved in terms of effects, adverse effects, and contra effects, exactly like poisons, and pharmaceutical materials. The side effects of these materials are as vital as the effects .In fact, they are effects on the long run. In another way, they should not kill massively beyond the range of their pre-decided legal claw, and "hiddenly" through mutagenicity, which works deeply across decades and generations. In terms of DU, allow the manufacturers to first prove its conventionality and then use it, but not before. The capacity of death should be callipered precisely in extent, mass and duration so that no undesirable hidden killing would silently take place. Illegal instruments should not be used, even in killing, although the taste of death is finally alike. Instruments also should be compatible with -but not above- the morals and ethics of wars, and nothing should be there above ethics and norms.

Leaving a sustained agendum of death to act insidiously and deeply at the level of molecules and chromosomes, and ignoring it is an immoral behavior, and should not occur in the claimed era of human rights and in the current advanced health and war technology. We believe until proven otherwise, that semi-nuclear is nuclear as well, and nucleotides and genes do not read well these accumulative quantitative gradients of radiology, but we do. Scientific silence is a hypocritical act, and it is the other face of the coin of death.

Reference

Hamdi H. Shelleh. Depleted Uranium. Saudi Med J 2012; Vol. 33 (5):483-48

Table 1: The half-lives* and specific activity of the 3 isotopes of Uranium

Isotope	U238	U-35	U234
Half life, million years	4510	710	0.247
Specific activity	12.4	80	231000
Average energy emitted per transformation			
Alpha	4.26	4.47	4.84
Beta	0.01	0.048	0.0013
Gamma	0.001	0.154	0.002
Relative isotopic abundance Natural Uranium (%)			
By weight	(99.28)	(0.72)	(0.0057)
Depleted Uranium (%)			
By weight	(48.8)	(2.4)	(48.8)
By activity	(83.7)	(1.1)	(15.2)

*The half life of a radioactive isotope is the time needed to decay to half of its original radioactivity