LOW DOSE IRRADIATION REDUCES CANCER MORTALITY RATES

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INTRODUCTION

The 20th century was lost from the viewpoint of health physics. The century started with enthusiasm for the benefits from low doses of X rays and elixers. Hundreds of thousands benefitted. However, the death of one public figure from a huge overdose of a radium elixer was enough to evoke severe government restrictions. Early research on atom bombs included ample funds to determine the harmful effects of ionizing radiation. Support ended for research on other biologic effects of low dose irradiation. Radiation hysteria in the media and politicians blinded epidemiologists, health physicists and medical practitioners to any possible beneficial effects from low doses of ionizing radiation. The ruling paradigm became “ALL RADIATION IS HARMFUL”.

High and low doses elicit opposite biologic effects. Since all high doses are considered harmful, low dose effects are considered to be beneficial. LOW DOSE is defined as any dose between ambient and a threshold dose. About 3,000 publications have documented the stimulatory effects of ionizing radiation for physiologic parameters in a great variety of organisms (1-4). The linear-no-threshold (LNT) concept is negated in those publications.

In order to illustrate important benefits from low doses of ionizing radiation, papers on cancer mortality rates in nuclear workers are reviewed. The data show consistent and statistically significant reduced cancer mortality rates in exposed nuclear workers. The results were ignored in order to conform to the paradigm. Apparent misrepresentation and/or misinterpretation allowed the authors to conform to LNT concepts and avoid suggestions of a beneficial effect. The 21st century must utilize all available data.

EVIDENCE

The decrease in total cancer mortality (the ordinate) with increased dose (the abscissa) in the figure represent over 300,000 nuclear workers and 7 million worker-years. Some studies overlap. The use of internal controls negates any “healthy worker effect”. Most of the studies involved a carefully selected unexposed worker to match each exposed white male. Less extensive data for females are comparable. The person-year weighted average indicates the mortality rate of exposed nuclear workers was only 51% that of controls.

Comments of the authors appear to misrepresent or misinterpret the results which clearly show decreased cancer mortality rates are directly related to low dose irradiation.

1. “FOR ALL MALIGNANT NEOPLASMS THE TREND WITH DOSE WAS POSITIVE, ...” (5).
2. “. MORTALITY FROM ALL MALIGNANT NEOPLASMS INCREASED SIGNIFICANTLY WITH INCREASING LEVEL OF CUMULATIVE WHOLE BODY EXPOSURE ...” (6).
3. “ALL CANCERS .... SHOWED NO EVIDENCE OF A POSITIVE CORRELATION WITH RADIATION EXPOSURE.” (7).
4. “... RADIATION EXPOSURES INCREASE RISK.” (8).
6. “... THE NUCLEAR WORKER POPULATION DOES NOT SHOW A SIGNIFICANT INCREASE IN THE RISK OF ANY OF THE CANCERS STUDIED...” (10).
7. “...NO INDICATION OF EXCESS CANCER DEATHS...” (11).
8. “THE RATE RATIOS FOR ALL CAUSES AND ALL CANCERS WERE CLOSE TO 1.00.” (12).

DISCUSSION

The consistency of results showing statistically significant (chi square) reduced cancer mortality rates in nuclear workers exposed to low dose irradiation is matched by benefits in other physiologic parameters (1-3). Excepting trauma from fear of radiation, no clinical or epidemiologic adverse effects have been substantiated in populations exposed to low dose irradiation. This is the basis for recommendations for radiation supplementation (13, 14).

The data indicate that about half of all cancer deaths are premature deaths. There are about 500,000 cancer deaths each year in the USA. Each is a devastating event for family. The total is devastating for each nation. Apparently half of these deaths could be prohibited or postponed by simple exposures administered by health physicists. The burden of these dead rests on committee members of regulatory organizations which have ignored sound scientific
The 21st century must return to objective science and reexamine the 3,000 papers showing the beneficial effects of ionizing radiation. Supplementation with low dose irradiation should become a public health service.

REFERENCES