Letters

Potassium Iodide: Effectiveness After Nuclear Accidents

In their letters of 1 October (p. 6) on potassium iodide policy in reply to my letter of 23 July (p. 295), Frank von Hippel and Sidney Wolfe and Cary LaCheen make some erroneous statements.

Therapeutic doses of iodine-131 for the treatment of hyperthyroidism deliver 5000 to 10,000 rads, not 100 rads, as Wolfe and LaCheen incorrectly quote me (in the third paragraph of their letter) as having stated at the Endocrine Society symposium on potassium iodide (KI) in June 1980 (*1*). Regarding the carcinogenic effect of this large radiation dose, the report of the Cooperative Thyrotoxicosis Therapy Follow-Up Study (*2*) on a group of 35,000 hyperthyroid patients, most of whom were treated with ^{131}I or surgery between 1948 and 1968, concluded that there was no difference in the thyroid malignancy rate between the two groups.

In my presentation at the Endocrine Society (*1*), I noted that the group receiving *diagnostic* doses of ^{131}I between 1948 and 1968 had thyroidal radiation doses averaging about 100 rads. They probably numbered at least 2 million, not 200,000 as Wolfe and LaCheen again misquote me as having stated. Thus, their calculations based on the *Reactor Safety Study* estimate (*3*) would have led to an extra 500, not 50, deaths superimposed on the usual 1500 deaths a year due to thyroid cancer, an increase that would hardly "have escaped notice."

von Hippel uses a different estimate, one obtained from the National Academy of Sciences (NAS) report on the biologic effects of ionizing radiation (*4*). The NAS estimate, based on external x-radiation delivered at dose rates that are very high compared to ^{131}I dose rates, gave a figure of four carcinomas per 10^6 person-rads per year. Using this estimate, by 1982 one would have expected an additional 20,000 thyroid cancers in the United States among those who received tracer doses of ^{131}I between 1948 and 1968 and 100,000 thyroid cancers among those who received therapeutic doses. This simply did not occur. Therefore it is commonly accepted by thyroidologists (*5*) based on the cumulative experience with the medical uses of ^{131}I that the risk estimates derived from x-radiation are too high by a factor of at least 5 and perhaps as much as 70 (*6*). It is not without interest that to counter this general medical experience von Hippel quotes a single paper, still unpublished, with Bernard Shleien as one of the coauthors, which allegedly reports that exposure to x-radiation and ^{131}I are equivalent in rats (*7*). Shleien also prepared the Food and Drug Administration's (FDA's) draft recommendations on the use of KI (*8*). In fact, although in the final recommendations of the FDA issued in April 1982 (*8*) it was noted that members of the medical community had commented that an anticipated thyroidal dose of 100 rem in humans is an appropriate value for consideration of thyroidal blockage by KI, Shleien considered his unpublished paper on rats to be the definitive study on which to base a recommendation of 25 rem. Bureaucracies seem to have an unfortunate tendency to listen only to themselves. As we all should remember, bureaucratic deafness resulted in the Swine Flu fiasco, in which the disease did not occur but people died or were paralyzed from unnecessary vaccinations that were given to millions because of strong recommendations from a federal agency.

With respect to the toxicity of KI, the FDA even now does not require reporting of side effects from usage of this drug and therefore can provide no hard data concerning the possible deleterious consequences of making it generally available to large masses of people not under medical supervision. The FDA has been delinquent in its responsibility to the American people in not requiring reporting of side effects of KI before recommending general distribution of a drug of unknown toxicity.

Wolfe and LaCheen call for guidance by federal agencies, while indicating a two to one majority against massive distribution of KI [the FDA and the Federal Emergency Management Agency (FEMA) for and the Nuclear Regulatory Commission against]. I would rather have guidance from the American Thyroid Association, constituting our most knowledgeable thyroidologists, who pointed out the need for additional data on the risk of radioiodine exposure and the risk of short-term iodide therapy and who concluded that mass distribution of KI is not recommended at this time (*5*). Perhaps FEMA did accept such guidance when it recently reversed its previous decision to purchase a large quantity of KI for a national stockpile. It should be noted that the Committee on Public Health of the New York Academy of Medicine, after extensive deliberations that included consideration of the data developed by Shleien and von Hippel as well as discussions of all other available scientific data, issued a resolution on 2 March 1981 that "opposes the stockpiling at the present time of potassium iodide for the purpose of potentially protecting the population against accidental exposure to radioactive iodine in New York City" (*9*). I cannot help but wonder if the officials in Tennessee, Vermont, and Alabama who ordered the purchase of KI had the advantage of similar careful scientific deliberations before reaching their decisions.

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