



ThyCa Journeys

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Support, education, and communication for thyroid cancer survivors and families.

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Potassium Iodide and the Thyroid Gland

Interview with Kenneth D. Burman, M.D., Endocrinologist, Director of Endocrinology at Washington Hospital Center, DC, and ThyCa Medical Advisor, conducted by Journeys Editor Barbara Weinstein

(Editor's Note: The information contained in this article is intended for educational purposes only. It is not intended, nor should it be interpreted, as medical advice or directions of any kind. Any person viewing this information is strongly advised to consult their own medical doctor(s) for all matters involving their health and medical care.)

Journeys: What is KI?

Dr. Burman: Potassium Iodide (KI) is simply a nonradioactive iodine that is similar or identical to iodine found in many foods.

Journeys: How does KI protect the thyroid of a healthy individual in the event of radiation exposure?

Dr. Burman: When this iodine is given in sufficiently large doses, it can block or inhibit the uptake of radioactive iodine into the thyroid gland.

In general terms, about 500 micrograms of regular nonradioactive iodine is ingested daily in an average North American diet.

Potassium iodine solution contains an enormous amount of iodine, usually greater than 100,000 micrograms daily. This enormous amount of iodine is preferentially taken up by the thyroid gland and less radioactive iodine would then be taken up.

The mechanism by which this happens is simply dilution--there are so many nonradioactive iodine molecules available that the chance of a radioactive iodine molecule is taken up is markedly reduced.

Journeys: Is KI 100% effective in protecting the thyroid from radiation exposure?

Dr. Burman: It is unknown if KI is 100% effective in decreasing radioactive iodine exposure to the thyroid gland.

Certainly it decreases the chance a radioactive iodine molecule would be trapped by the thyroid gland.

Journeys: In what real world cases has KI been used?

Dr. Burman: KI was used in Poland to decrease isotope uptake by the thyroid gland following the Chernobyl accident, and it seems that it indeed was effective in decreasing the subsequent chance of patients getting thyroid cancer. This, of course, was not a controlled study.

Journeys: Is KI equally beneficial for children and adults?

Dr. Burman: It is unknown if the benefits of KI would be similar in adults and children, but it is suspected they would be comparable. The doses of KI given to children are less than adults.

Journeys: What would be the benefits of KI for someone without a thyroid who has been exposed to harmful radiation?

Dr. Burman: Since someone who has had thyroid cancer would likely have had a thyroidectomy as well as radioactive iodine treatment, they would not be expected to have residual thyroid tissue. Therefore, even if there was a nuclear accident with release of radioactive iodine, they would not be expected to trap this iodine. As a result, there is no expectation that they would suffer any thyroid consequences.

On the other hand, radioactive iodine is trapped by salivary glands and other tissues, to a small extent, and although I have not read anything scientific on this topic, it seems reasonable to me for even thyroid cancer patients to consider taking KI in the event of a nuclear accident. This topic needs further evaluation and should be discussed by the patient with their physicians.

Journeys: Are there any side effects to KI?

Dr. Burman: Some patients are allergic to KI and most likely will have a skin rash although very rarely more serious adverse effects can occur. If a patient has a thyroid gland, KI can rarely cause hyper or hypothyroidism. A history of allergy to shellfish or radiocontrast dye does not necessarily indicate an adverse reaction to iodine and these issues should be discussed with each individual physician.

Journeys: Does KI protect any other part of the body besides the thyroid from radiation exposure?

Dr. Burman: The most important known effect of taking KI is protecting against thyroid uptake of radioactive iodine. It will not prevent exposure or risk for subsequent significant medical problems such as leukemia. It may have some minor effect on decreasing salivary gland uptake (and perhaps even breast tissue uptake in lactating women) of radioactive iodine, but the long term beneficial effects in these areas are unknown.