PERSONAL HEALTH | Jane E. Brody

Thyroid Fears Aside, That X-Ray's Worth It

It doesn't take much to scare people when it comes to cancer, especially when the cause, unlike smoking, seems beyond one's control.

So I was not surprised by a stream of panicked e-mails I received after a television show in which the popular Dr. Mehmet Oz called thyroid cancer "the fastest-growing cancer in women" and cited the harmful effects of radiation from sources like dental X-rays and mammograms.

Dr. Oz warned that people who have more than five X-rays a year have a fourfold greater risk of developing this cancer, and recommended the use of a lead thyroid shield when getting dental X-rays or mammograms. One of his guests on the program, Dr. Carolyn Runowicz, a gynecological cancer specialist, said she would not get dental X-rays if the only reason was to check her teeth.

Thyroid cancer is much on people's minds, particularly because of the nuclear reactor accident in Japan. After all, it has only two known causes: a rare genetic condition and exposure to large doses of radiation, especially during childhood.

The effects of radiation are cumulative, so in theory frequent exposure to even low doses could add up to a cancer risk. So what are the facts about radiation and the thyroid, and how concerned should you be about an annual mammogram or dental X-rays every few years?

Here are a few things to remember:

¶Thyroid cancer is relatively rare, accounting for about 3 percent of all cancers in women, 1 percent in men and 1.4 percent in children.

¶Diagnoses of thyroid cancer have increased sharply in recent decades. Between 1980 and 2007, the incidence rose to 17 per 100,000 from 6 per 100,000 each year, and to 5.8 per 100,000 from 2.5 per 100,000 men each year. The number of diagnoses in women nearly doubled from 2000 to 2008.

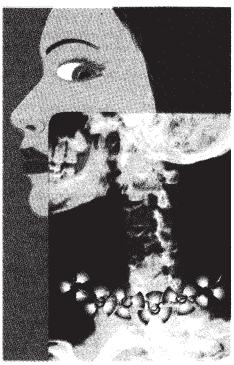
¶Yet the death rate from this disease has not increased, and more than 97 percent of patients survive.

Dr. Otis W. Brawley, chief medical officer of the American Cancer Society, said the stable death rate despite a rising incidence strongly suggests that most of the thyroid cancers now being diagnosed would never have become a health threat.

"Our technology has gotten so good that we are finding cancers today that even 15 years ago would not have been diagnosed," Dr. Brawley said in an interview. "We're finding and treating cancers that would never have killed anyone."

Advances in Diagnostics

In a study describing a 140 percent increase in thyroid cancers diagnoses from



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1973 to 2002, published in The Journal of the American Medical Association in 2006, researchers at the Veterans Affairs medical center in White River Junction, Vt., also concluded that the rise was the result of "increased diagnostic scrutiny."

They noted that if there were a true increase in thyroid cancer, the rise would be reflected in patients at every stage of the disease. But in their study, 87 percent of the increase was attributable to diagnoses of small papillary thyroid cancers, many of which would never have caused any problem.

The fact that thyroid cancer increased in all age groups from 2000 to 2008, Dr. Brawley said, "is more consistent with the introduction of new diagnostic technology than with any cause like mammography." If mammography were a factor in the rise of thyroid cancer, he added, you'd expect to see a greater rise in women older than 50 than in women ages 20 to 40.

Dr. Leonard Wartofsky, a thyroid cancer specialist at Washington Hospital Center in the District of Columbia, said in an interview, "The doses associated with mammography have been well studied and well calibrated. As long as it is done with modern equipment, women should not be concerned. That degree of radiation is not consequential."

The higher rates of thyroid cancer found in women could also reflect the fact that many are checked annually by gynecologists, who routinely examine the thyroid region for possible enlargement, Dr. Brawley suggested.

With regard to dental X-rays, he noted that

the amount of radiation exposure associated with them has decreased considerably in the last 20 years, which is inconsistent with a rise in thyroid cancer diagnoses.

Radiation Risks

To be sure, exposure to high doses of radiation, especially in childhood, raises the risk of cancer, and thyroid cancer in particular. Well before this risk was recognized, radiation was widely used to treat benign conditions like enlarged tonsils and adenoids, acne and ringworm of the scalp.

Thyroid cancers afflicted many who were exposed as children, or even prenatally, to large amounts of radiation when Americans dropped atomic bombs in Japan in 1945 and when the Chernobyl accident occurred in 1986.

While very large doses of radiation destroy the thyroid, moderately high doses—like those that are used to treat Hodgkin's disease or tumors of the head and neck—can cause genetic mutations that develop into cancer.

But what of lower doses? Studies of the relationship between frequent dental X-rays and thyroid cancer have been conflicting, and in some the methodology has been suspect. (Some reports, including a frightening one from Kuwait, relied on people's ability to remember the X-rays they received.)

But the best study of diagnostic X-ray exams, conducted in Sweden, where precise medical records are kept, found no connection to thyroid cancer.

Other factors linked to an increased risk of thyroid cancer include consumption of nitrates in public water supplies (from fertilizer runoff) and certain vegetables, and goiter caused by insufficient iodine in the diet.

Playing It Safe

There's no harm in asking a mammographer to use a lead thyroid collar, and a lead apron should cover the front of the neck during dental X-rays. Still, some internal radiation scatter will occur, Dr. Brawley said.

Dr. Wartofsky suggested that women worried about the radiation from a mammogram could have an M.R.I. or ultrasound exam instead. But check first on insurance coverage for these alternatives.

For dental checkups, find a dentist who uses digital X-rays, which deliver much less radiation. "We've said for years that the amount of radiation from dental X-rays is not enough to cause cancer," Dr. Wartofsky said.

And don't let irrational fear get the better of you: It is simply not possible to detect all dental decay without X-rays, and missing hidden decay could result in the need for a root canal or extraction of the tooth.