

Counterpoint: Expert disputes cumulative dose theory

Not everyone is convinced cumulative radiation dose exists, or even that repeat CT scans cause cancer. There has never been any scientific data to prove there is a cumulative effect for somebody who gets scanned once a year, according to Richard Morin, Ph.D., chair of the American College of Radiology's safety committee.

"There is no radiation biology to demonstrate CTs are additive in any way," said Morin, who is also a professor of radiologic physics at the Mayo Clinic in Jacksonville, FL.

Morin likened receiving multiple CT scans to keeping a log of the miles one drives every day. There's a certain probability of getting into an accident, but does that mean there will be an accident when a certain number of miles is driven? It's not as though when a person reaches an arbitrary threshold—say, 200 miles—then something bad will happen. Cancer is much more complex than that, he said.

"I think what we have here is an education issue," Morin said. "This whole idea of a cumulative radiation effect is terminology that should not be used because there isn't something like that."

Additionally, there's no generally accepted method for determining cumulative dose. Chest x-rays can't be added to

head CTs to come up with one number that's the total amount of radiation, he said. They just don't add together.

While it is known ionizing radiation at high levels produces cancer, there is no way to figure out whether a person contracted cancer because of ionizing radiation, a carcinogen, or random chance, Morin said. The pathology will look the same.

"There's nothing specific about a cancer produced by ionizing radiation that's different than one produced by any other agent," he said. "In fact, if you take a look at the ability to produce mutations, ionizing radiation is actually quite a weak mutagen, much weaker than benzene and some of the other known carcinogens."

Still, CT scans should not be ordered willy-nilly, Morin said. It's important the right test is ordered at the right time and computerized order entry/decision support aids that process. If a patient received 20 CT scans in a month, somebody ought to look at that and ask why. But it's important not to scare the public when it comes to radiation dose.

"We don't want patients running around adding up numbers and then turning down exams that would otherwise be life-saving," he said.

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