

The Hazards of Medical Scans

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Multiple new reports agree: Americans get far too many CT scans and MRIs for their own good.

The December cover story in Consumer Reports focused on over testing in general, while January's Journal of the American Medical Association specifically singled out CT scans and MRIs, noting that Americans undergo five times as many of these tests as Finns do, for example. And yet Finland – and most other developed countries – enjoy better health and live longer lives than Americans.

What, one might ask, is wrong with getting more tests, just to be safe? It turns out “just to be safe” are four of the most misleading words in medicine, or as the Los Angeles Times recently opined: “exactly the wrong reason to get a test.”

That's because these “safe” tests come with a lot of risks. As your Quizzify quizzes will teach in the months ahead, CT scans emit more than 100 times as much radiation as x-rays. CT scan radiation is especially hazardous for children, girls in particular. And yet the number of scans is growing fastest in the 15-and-under age group.

Unlike CT scans, MRIs don't emit radiation. That's the good news. The bad news is that the “contrast media” introduced via IV into your veins can end up in your brain. Fortunately, only about a third of MRIs require contrast media.

Unless you get many of these tests or are very unlucky, the likelihood of an adverse event related to contrast media or radiation is quite low. Otherwise, we would be reading about large numbers of radiation-induced cancers and contrast-media induced disorders. That hasn't happened yet. While both rates are increasing, the absolute number of cases is very low. And in the case of the contrast media, complications seem to be confined to very specific circumstances.



Unfortunately, there is yet one more downside of over-scanning – and it’s not rare at all. It’s called “overdiagnosis.” There are two types of overdiagnosis. The first is abnormal findings that were not the focus of the test, and/or findings with no clinical significance. These are so common they have a name: “Incidentalomas.” If you get one of these tests, be prepared to learn that you have a “mass.” You will be concerned, but most are harmless.

The second is simply an incorrect diagnosis, but one that you will likely pay more attention to because of the clarity of the imaging and the complexity of the test. However, particularly in spine imaging, incorrect diagnoses are very common. In one study, 10 imaging centers reported a total of 49 different diagnoses on the same person.

We don’t want to overstate these hazards, just bring them to your attention. Of course, there are many instances in which CT scans and MRIs are invaluable diagnostic tools. Doctors can see far more with these technologies than they can through x-rays alone. This article isn’t to suggest that you should never get these tests, just that you shouldn’t “demand” one that the doctor isn’t recommending. And when one is recommended, ask a few questions before agreeing to be scanned – about the radiation (for CT scans), the contrast media (for MRIs) and the likelihood of misdiagnosis for both types of test.

Asking questions is an excellent idea in general before any medical test, procedure or even prescription. Quizzify and Choosing Wisely (a site to guide patients through medical care) recommend five:

- 1) Do I really need this?
- 2) What are the risks (and specifically ask about “overdiagnosis)?
- 3) Could there be simpler, safer options?
- 4) What happens if I do nothing?
- 5) How much will this cost?

And anytime you venture into the medical system, keep in mind that you can be harmed by too much medical care as well as too little. Or, as our partners at Quizzify caution, just because it’s healthcare doesn’t mean it’s good for you.

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