
Informing Patients About Imaging Tests' Radiation Risks



The general population does not receive enough information regarding radiation exposure and the associated risks related to imaging tests. Thus, initiatives should be designed to reinforce the patient's awareness when ordering a diagnostic imaging test, says a new study published in the journal PLoS ONE.

Over the past decades, a significant part of healthcare overuse is attributable to a massive increase in medical imaging. It is therefore necessary that patients understand the risks of radiation associated with imaging tests, as previous studies have shown that well informed patients are less likely to request unnecessary diagnostic tests.

Few studies have been conducted to assess patient knowledge of and attitudes towards radiation and only some have focused on the general population. Additionally, these studies showed that although computed tomography (CT) is estimated to be responsible for more than 70% of the collective radiation dose received by patients, most of them lack information about the reasons behind the imaging test prescribed (the benefits) and the associated radiation dose (the risks).

The current study aimed to evaluate the population's awareness about the radiation exposure associated with five specific imaging tests, and their preference regarding three different formats for receiving the information before undergoing an imaging test. Researchers performed a quantitative and qualitative evaluation through a survey and focal groups including general population from two health departments in Spain. The sampling was carried out in stages (according to health department size) and stratified by age and sex, to get a representative sample. Study participants were randomly selected from these stages to be contacted by telephone by a trained nurse. Oral informed consent was obtained.

Of 602 participants in the quantitative survey, 418 (70.3%) stated that they were aware of the risk associated with radiation. While the majority of these 418 participants knew that x-rays involve radiation (85.4%), fewer were aware that CT (42%) and mammography (38%) also involve radiation, and a substantial proportion believed, incorrectly, that MRI (38%) and ultrasound (18.4%) expose patients to radiation. The population preference was to receive the information using both oral and written formats, accompanied by a table showing the equivalence of the radiation associated with the imaging test to either a number of chest x-rays and exposure number of days of background radiation.

In the qualitative evaluation, most of the participants said they did not know enough radiation exposure terms to understand the physicians' explanation and some of them had misconceptions about radiation exposure that could alter their expectations of benefits versus risks, the researchers note.

Another interesting finding is that less than 20% of the interviewed population indicated that the physician informed them about the risks associated with imaging tests involving radiation. Similarly, in the qualitative evaluation, the participants stated that they received little information regarding the radiological risks and they pointed out that they only received information about how they should prepare themselves for the test.

"This study highlights the lack of knowledge in the general population and the limited information delivered by the health professionals regarding the risks associated with radiation exposure from imaging tests. Initiatives should be designed to reinforce patients' awareness of radiation exposure and their role when ordering a diagnostic imaging test. Some tools could help, such as a table detailing the radiation equivalence in terms of x-rays, of background radiation, or of associated cancer risk, or the availability of the patient's radiation dose history," the researchers conclude.

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