

Manuscript ID: 75219

Are We Aware Of Radiation: A Study About The Necessity Of Diagnostic X-Ray Exposure

Dear Editor,

Thank you for giving us the opportunity to submit a revised draft of the manuscript. We appreciate the time and effort that you and the reviewers dedicated to providing feedback on our manuscript and are grateful for the insightful comments on and valuable improvements to our paper. We have incorporated most of the suggestions made by the reviewers. Those changes are highlighted with track changes function through the manuscript. Please see below for a point-by-point response to the reviewers' comments and concerns.

Reviewer #1 COMMENTS:

1. "The authors show us a good investigation about diagnostic X-ray exposure. This topic is very important since over-exposure may harm patients' health. But the innovation of the manuscript is poor. Major comments: 1. Avoiding unnecessary medical irradiation is very crucial and attracting the attention of clinicians is very important. But the author did not give some working suggestions to solve this problem, such as avoiding unnecessary CT scans."

Response: In line with your suggestions, we added a paragraph stating and emphasizing our solution suggestions in the last part of the discussion in order to reduce unnecessary radiation exposure. The paragraph we added is available below.

"According to the findings of our study, some solutions can be offered to prevent unnecessary radiation exposure. The first and most critical of these is to raise patients' and clinicians' radiation awareness and consciousness, and to schedule regular radiation training sessions. If the patient's previous radiation exposure and total dose of exposure are displayed as warnings in the patient information system in the hospital prior to clinicians make a request a medical exam that includes radiation, this can help reduce unnecessary request and exam repetition. By reducing patient density, doctors can spend more time with the patient rather than rushing to a CT

diagnosis, and radiation exposure can be reduced. Additionally, with detailed informed consent to the patients about the potential risks of radiation, the patient's insistence on examination with radiation is reduced, and unnecessary radiation exposure can be prevented."

Reviewer #1 COMMENTS:

2. "The conclusion suggests that both patients and physicians may without enough knowledge about ionizing radiation. If the author wants to attract necessary attention about diagnostic X-rays through this manuscript, the author could provide more data about misapplying about medical irradiation and its serious consequences."

Response: In line with your suggestions, to emphasize the importance of diagnostic X-ray exposure and its serious consequences, we added more data to the introduction. The paragraph we added is available below.

"Ionizing radiation exposure can damage DNA, increasing an individual's lifetime risk of developing cancer. The radiation doses associated with routine CT examinations are comparable to those received by individuals with a documented increased risk of cancer. For example, an increased risk of cancer has been identified in long-term survivors of the Hiroshima and Nagasaki atomic bombings who were exposed to 10 to 100 millisieverts of radiation^[9,10]. A single CT scan can expose patients to an equivalent amount of radiation, and patients may undergo multiple CT scans over time^[11,12]. While a single medical imaging exam with radiation does not pose a significant risk to an individual, the annual exposure to radiation from millions of imagings with radiation is a significant public health problem. Additionally accidental exposure to high doses of ionizing radiation can also result in short-term injuries, including burns and hair loss. Exposure to such doses directly in the eyes can increase the risk of developing cataracts^[13,14]."

Reviewer #2

Thank you for your acceptance.

EDITORIAL OFFICE'S COMMENTS

(1) Science editor:

“This manuscript showed a good investigation about diagnostic X-ray exposure. The topic is interesting but the author do not give enough new information. Author may need to highlight the new knowledge the paper could provide. Please provide some advise on how on avoid unnecessary CT scans.”

Response: In line with your suggestions, we added a paragraph containing various advises to avoid unnecessary CT scans. The paragraph we added is available below.

“According to the findings of our study, some solutions can be offered to prevent unnecessary radiation exposure. The first and most critical of these is to raise patients' and clinicians' radiation awareness and consciousness, and to schedule regular radiation training sessions. If the patient's previous radiation exposure and total dose of exposure are displayed as warnings in the patient information system in the hospital prior to clinicians make a request a medical exam that includes radiation, this can help reduce unnecessary request and exam repetition. By reducing patient density, doctors can spend more time with the patient rather than rushing to a CT diagnosis, and radiation exposure can be reduced. Additionally, with detailed informed consent to the patients about the potential risks of radiation, the patient's insistence on examination with radiation is reduced, and unnecessary radiation exposure can be prevented.”

(2) Company editor-in-chief:

“I have reviewed the Peer-Review Report, full text of the manuscript, and the relevant ethics documents, all of which have met the basic publishing requirements of the World Journal of Methodology, and the manuscript is conditionally accepted. I have sent the manuscript to the author(s) for its revision according to the Peer-Review Report, Editorial Office’s comments and the Criteria for Manuscript Revision by Authors. Authors are required to provide standard three-line tables, that is, only the top line, bottom line, and column line are displayed, while other table lines are hidden. The contents of each cell in the table should conform to the editing specifications, and the lines of each row or column of the table should be aligned. Do not use carriage returns or spaces to replace lines or vertical lines and do not segment cell content.”

Response: We reviewed and edited the tables in line with your suggestions.