

Adherence to ALARA principle in the era of COVID-19 pandemic

Halit Nahit Şendur 

Department of Radiology (H.N.Ş ✉ hsendur@gmail.com), Gazi University School of Medicine, Ankara Turkey.

Dear Editor,

The coronavirus disease 2019 (COVID-19) outbreak impacted healthcare applications in an unprecedented way. ALARA (as low as reasonably achievable) principle is strongly endorsed in the radiology community to protect patients from potential harms of radiation. Depending on several CT applications related to COVID-19 outbreak, the adherence to this vital principle seems questionable in these days. Globally documented COVID-19 cases approximate 5 million, and the number of people undergoing CT examinations is increasing continually. Moreover, if this outbreak did not occur, probably CT would not be performed to the majority of these patients in this time period. This indicates that more number of individuals than expected are exposed to radiation dose from medical imaging applications because of this outbreak.

Although several studies reported a pivotal role for CT in the diagnosis of COVID-19, the positive predictive value of CT is low unless the disease prevalence is high. However, the scarcity of reference standard RT-PCR testing kits, prolonged turnaround times or possibility of false negative results for RT-PCR led to greater utilization of CT imaging to achieve the goal of containment (1). Furthermore, during the disease course, Ding et al. (2) reported up to 8 CT scans for individuals (average, 3.1 scans) to document temporal changes in lungs in their study cohort. Given that 2 or 3 CT scans result in a detectable increase in the risk of cancer (3), it can be foreseen that this outbreak will potentially trigger increased number of cancer cases in the future.

Although there is still no precise data for inaccurate usage of CT scans in the era of COVID-19 pandemic and CT usages may have contributed to preventing the spread of the disease in some regions, its danger has been anticipated by American College of Radiology and it is advised that CT scans should not be used for the screening of COVID-19 (4). Additionally, most of the published lit-

erature focused on CT findings of proven cases, and did not report the exact number of performed CT scans for PCR-negative cases. This suggests that the stakes are high in terms of radiation exposure in this era. On the other hand, low dose or ultra-low dose CT scans may be considered as a solution for this debate. If CT scans are necessary for patients, these are beneficial applications. However, it should always be kept in mind that no radiation level is as safe as not being exposed to it.

From this perspective, clinicians should take into account the future of the patients when considering CT scans for any purpose related to COVID-19 and during the outbreak a tighter adherence to vital ALARA principle is imperative more than ever. In addition to maintaining quality of patient care, radiologists should participate in the decision process of medical imaging for patients in collaboration with clinicians to balance potential harmful effects of radiation exposure. Therefore, a multinational and multidisciplinary emphasis in the era of COVID-19 pandemic for ALARA principle is of paramount importance for protecting COVID-19 patients from future cancer risk.

Conflict of interest disclosure

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