

Letter to Editor: The Necessity of Investigating Ways to Reduce Skin Complications Caused by Ionizing Radiation during Radiation Therapy



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To the Editor

Radiation therapy is a method used for the treatment of patients with all types of cancers. Nonetheless, this method affects other body tissues besides tumors, especially the skin, resulting in inflammation and even skin burns (1). Almost the majority of patients who have been treated with radiation therapy have experienced skin complications of various degrees, which has reduced their quality of life (2). The first recorded radiation burn occurred in 1901 when Becquerel accidentally dropped a radioactive container, causing a burn on his forearm. Subsequently, Pierre Curie also experienced similar injuries. Initially, these injuries were mainly skin reactions and burns on the hands of people working with radiological equipment. Still, over time, other types of lesions, including radiation-induced cancers, were also identified (3). Studies demonstrated that more than 70% of patients with malignant cancers need radiation therapy, which causes skin complications in 95% of these patients (4). Skin complications caused by radiation include a wide array of skin diseases, including radiation dermatitis, bullous pemphigoid caused by radiation, and sclerodermatosis (5). For instance, a study was conducted in Iran on a group of women with breast cancer who underwent surgery and radiation therapy. The results pointed out that among the 51 examined patients, 58%, 35.5%, and 6.5% of cases had grade 1, grade 2, and grade 3 skin damage, respectively (6). The side effects can prolong the recovery time and the duration of radiation therapy (7). Depending on the type of skin complications, treatments include steroids, creams, ointments, hydrocolloid dressings, and advanced treatments, such as stem cells and oxygen therapy (4). Unfortunately, there are currently only a limited number of drugs effective in addressing the side effects of radiation therapy (8). It is worth mentioning that the oxidative damage caused by radiation therapy to the skin can be observed by increasing the activity of malondialdehyde and decreasing antioxidant enzymes, such as catalase,

glutathione peroxidase, and superoxide dismutase. In this case, prescribing a substance called curcumin before and after radiation can also prevent oxidative damage caused by radiation therapy. It significantly improves the activity of antioxidant enzymes (7). In recent decades, there has been a notable emphasis on investigating the fundamental mechanisms of skin damage caused by radiation, as it has emerged as a significant challenge in improving patient care during radiation therapy (9). Therefore, considering the substantial prevalence of skin complications caused by radiation therapy, which includes burns and skin wounds and can negatively affect the appearance of the skin, self-image, and quality of life of people, it is suggested that relevant experts take into account appropriate strategies to prevent or reduce these complications.

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Compliance with ethical guidelines

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Authors' contributions

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Conflict of Interests

The authors declare that they have no conflict of interest.

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