

# Chapter 11

## RADIATION INJURIES

İsmail BORAZAN<sup>1</sup>

### Introduction

Exposure to radiation (irradiation) occurs when an individual is present in an environment where radioactive material is present. Unlike contamination, in irradiation, no transfer of radioactive material is observed, and it does not pose a threat to the surroundings. Contamination, on the other hand, is defined as having radioactive material externally or internally in the body, where the spread of radioactive material is observed, and it can present a hazardous situation for the surroundings. External contamination results from the penetration of radiation from the source to the skin and even deeper, while internal contamination occurs when radioactive particles are ingested or inhaled (1).

Four factors are crucial for protection from radioactivity: time, distance, protective equipment, and the quantity of radioactive material. Individuals should increase their distance from the source to reduce exposure, attempt to decontaminate the environment, minimize the time spent in the same vicinity as the source, and employ protective gear to prevent the impact of the source. Current medical treatment plays a vital role in cases of moderate to high levels of exposure (1,2).

Patients contaminated with radiological particles generally do not pose a significant risk of acute radiation dose to healthcare personnel if proper protective equipment is used, and decontamination procedures are followed. Therefore, healthcare workers should not refrain from treating conventional traumas caused by ionizing radiation or radioactive contamination. Healthcare personnel should be monitored for contamination and, if necessary, decontaminated after treatment. Patients who have been exposed only to radiation without contamination do not pose any risk to healthcare workers (3).

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<sup>1</sup> MD, Etlik City Hospital, Department of Emergency Medicine, drismailborazan@gmail.com  
ORCID iD: 0009-0003-4486-6383

technologies, adherence to safety protocols, and continuous training, medical personnel can minimize the risks associated with radiation exposure, ensuring optimal patient outcomes and the overall well-being of both caregivers and the community. As research continues to evolve and guidelines are refined, the healthcare community must remain vigilant, adaptive, and well-informed to effectively manage the challenges posed by radiation exposure in the realm of emergency medicine.

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## Current Approaches in Emergency Medicine

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