



Breast radiation oncology in the modern era: evolution and advancements

Advancements in our understanding of breast cancer biology and behavior have allowed oncologists to push the envelope in treatments offered. Trimodality therapy, with surgery, chemo- and/or endocrine therapy, and radiation, is frequently used to maximize cure. With improvements in systemic therapy and radiation technology, surgeons can now perform more limited surgery in the breast and regional lymph nodes and safely rely on their partners in radiation oncology to complete a patient's local therapy. This shift has now been reflected in treatment guidelines and practice. In the modern era, breast conservative therapy, rather than mastectomy, has become the standard for treatment of early-stage breast cancer (1). Post-mastectomy radiation therapy and regional nodal irradiation are delivered more frequently now than ever before (2,3). Shorter radiation treatment regimens and smaller treatment fields have been routinely adopted into practice (4-8). By tailoring therapy in this way, oncologists have been able to reduce the morbidity of their treatment without comprising cancer-related outcomes.

In this series, we will explore the applications and practice as well as future directions of breast cancer radiation oncology. Jhawar *et al.* expertly review the move from conventionally fractionated (long course) to modestly- and ultra-hypofractionated (short course) breast irradiation. Abdelrhman *et al.* discuss the treatment approach of partial breast irradiation in the setting of early-stage breast cancer. Jones *et al.* review the evolution of post-mastectomy radiation therapy in the modern era. Seldon *et al.* evaluate the role of regional nodal irradiation and its application in the setting of sentinel node biopsy. Li *et al.* explore the role of preoperative therapy as a new treatment paradigm for early-stage breast cancer. Saeed *et al.* provides a study on the role of salvage radiation in oligometastatic disease. Hentz *et al.* review future directions for breast radiation therapy in clinical trials. Konski reviews the impact of financial toxicity incurred by breast cancer patients and factors that make patients especially vulnerable to this distress.

Please join us learning more about the current applications and future directions of radiation treatment in breast cancer treatment. Breast cancer afflicts one in eight American women, and is the most common non-cutaneous cancer in women (9). For this reason, efforts to improve efficacy and reduce toxicity of breast cancer treatment are especially impactful and of utmost importance.

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