

# Partial Breast Irradiation

## A longitudinal study of symptoms and quality of life

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**BACKGROUND:** In many women with early-stage breast cancer, breast-conserving surgery (BCS) with partial breast irradiation (PBI) has similar overall survival and local recurrence rates compared to BCS with whole-breast irradiation (WBI). A better understanding of the quality of life (QOL) outcomes during and following BCS with PBI versus BCS with WBI is needed.

**OBJECTIVES:** This study was conducted to examine symptoms, symptom distress, cosmesis, QOL, and perceived body image in women during and after BCS with PBI.

**METHODS:** A convenience sample of 31 women completed self-reports pre- and post-PBI over six months. Descriptive statistics and repeated-measures analysis were performed at baseline and three times post-PBI.

**FINDINGS:** Most women reported satisfaction with body image and good QOL, despite a small decline in social well-being. Fatigue and mild to moderate symptom distress persisted over time.

### KEYWORDS

breast cancer; quality of life; radiation therapy; body image; partial breast irradiation

### DIGITAL OBJECT IDENTIFIER

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**WITH MORE THAN THREE MILLION BREAST CANCER SURVIVORS**, it is necessary to identify and understand treatment-related sequelae that affect quality of life (QOL) as therapy evolves (National Cancer Institute, 2016). Radiation therapy with breast-conserving surgery (BCS) has been an equivalent alternative to mastectomy for regional control of the cancer (Fisher et al., 1995; National Institutes of Health, 1991; Veronesi et al., 2001). Whole-breast irradiation (WBI) has been the predominant approach, but the treatment schedule for WBI (i.e., five days per week for six weeks) can be challenging; as a result, some women chose mastectomy as the primary breast therapy (Katie Lee & Knobf, 2015; Lee & Knobf, 2016). Compared to mastectomy, BCS with WBI may be associated with increased use of resources and may negatively affect overall QOL (Kawase et al., 2012; Shah, Lanni, et al., 2013; Whelan, Levine, Julian, Kirkbride, & Skingley, 2000).

Partial breast irradiation (PBI) was explored as an alternative to WBI in an effort to deliver irradiation to a limited area of the breast area near the original tumor site (Swanson & Vicini, 2008) and was found to provide equal benefit, fewer side effects, and improved QOL (Gage et al., 1995; Polgár et al., 2007, 2017; Shah, Vicini, Wazer, Arthur, & Patel, 2013; Smith et al., 2009; Smith, Lee, Turner, Carter, & Haffty, 2000).

The potential benefits of PBI are the accelerated delivery and reduction of radiation exposure to adjacent organs, such as the heart, lungs, and skin (Shah, Vincini, et al., 2013). PBI can be delivered by brachytherapy with multicatheter or balloon catheter devices, implanted radiation sources placed intra- or postoperatively, or external beam therapy (most commonly, three-dimensional conformal external beam radiation therapy [3DCRT]) (Njeh, Saunders, & Langton, 2010; Shaitelman & Kim, 2013; Skowronek, Wawrzyniak-Hojczyk, & Ambrochowicz, 2012).

In the postoperative period following BCS, accelerated PBI using brachytherapy or 3DCRT is typically delivered in high-dose fractions twice daily for about five days (Njeh et al., 2010; Shah, Lanni, et al., 2013; Shaitelman & Kim, 2013; Skowronek et al., 2012; Swanson & Vicini, 2008). Effectiveness, risk, and side effect profile are still under investigation for intraoperative accelerated PBI (Correa et al., 2017).

In 2009, the American Society for Radiation Oncology (ASTRO) issued a consensus statement with recommendations for use of PBI (Smith et