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### Proton accelerated partial breast irradiation (APBI) has an exceptional patient satisfaction profile

**Introduction:** Accelerated partial breast irradiation has been advocated due to its favorable schedule and targeted treatment volume. Proton-based APBI is non-invasive and dosimetrically superior to other forms of APBI in protecting non-target structures. We reviewed our initial experience with proton APBI to assess patient experience factors.

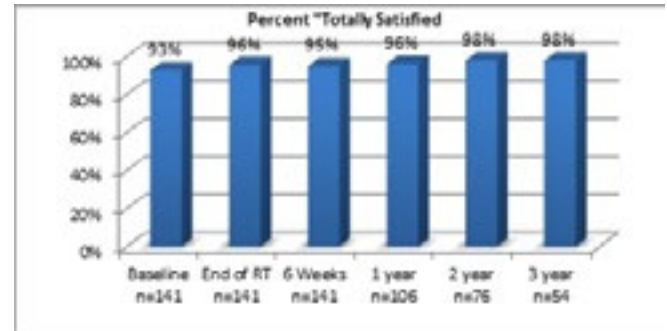
**Methods:** 150 sequential patients were treated with multibeam proton APBI on a prospective protocol and 141 patients with a minimum six month follow-up were available for patient reported cosmesis, quality of life and nonreimbursed personal costs. Patient surveys were taken at baseline, end of radiation, two weeks, six weeks, six months, and every six months thereafter through three years of follow-up. Patient selection fit the ASTRO consensus criteria as “acceptable” or “cautionary” for treatment with APBI. The tumorectomy cavity plus a 1.5 cm clinical target expansion was treated to 34 Gy in 10 fractions, twice daily, over five day’s time as we have reported elsewhere. At the completion of treatment, patients were asked to assess the impact radiation therapy treatment had on their daily life including time spent undergoing treatment, time away from work, and out-of-pocket expenses experienced during the radiation treatment. Data analysis was conducted in October 2018.

**Findings:** At a median follow-up of 30 months (range: 6-82) all 141 patients are alive and there are no local recurrences. There were 74 left breast cancers treated and 67 right breast cancers

and the median age of the patients at the time of treatment was 68 (range: 45-85). 20 patients underwent wide local excision (WLE) only, 4 patients WLE and axillary dissection and 117 underwent WLE and sentinel lymph node biopsy (SNLB). Histology breakdown included DCIS: 30, invasive ductal: 94, invasive lobular: 13, Mucinous: 1, papillary: 1, and carcinoma NOS: 2. The estrogen receptor was positive in 130/141 patients, negative: 8, and unknown: 3. Patient reported symptoms in the treated breast included 3 episodes of infection, and 4 transient episodes of moderate to severe pain recorded. There were no grade 3 toxicities, specifically no grade 3 radiation dermatitis. Figure 1 shows patient satisfaction as a function of time using a 5-step scale from “totally dissatisfied” to “totally satisfied”. 139 patients recorded their estimated time receiving treatment with a mean of 10 hours (SD+/-4.3 hours). 135 patients estimated their out of pocket expenses during radiotherapy with a median of \$700 and interquartile range of \$100-1500. Since many patients do not live within commuting distance of our facility, these expenses likely include lodging for the week of treatment. For the 43 patients currently employed during their treatment the median time away from work was 5 days (interquartile range 2-5).

**Conclusion:** Patient satisfaction with a five day proton partial breast irradiation program is very high and persists with longer follow-up. Patient borne costs and time commitment for treatment are less than that expected for whole breast irradiation and time away from work averaged only five

days. While primarily suitable for postmenopausal women with unifocal, screen detected cancers; proton partial breast radiation has a superior patient satisfaction profile.



**Biography**

Eric A. Strom is the Professor of Radiation Oncology, UT M.D. Anderson Cancer Center, Houston, Texas, USA. He is the senior member of the breast section of a group which treats over 1000 patients annually. He is considered as a full time clinician, his academic output has been primarily driven by issues that arise in the day-to-day treatment of patients with radiotherapy for their breast cancer. Author of over 175 publications, areas of his interest include locally advanced and locally recurrent breast cancer, integration of reconstruction and radiation, cardiac protection during radiotherapy, curative treatment of oligometastatic breast cancer and proton APBI. As an educator in the largest radiation oncology training program in the US. He believes that the best outcomes come from attention to the details of radiation planning and delivery. He is dual board certified in both Internal Medicine and in Radiology – Radiation Oncology and a Fellow of the American College of Radiology.

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