(82.4% vs 75.8%, $P = .40$). The 5-year survival rate for patients with relapse in the FDG-PET group was 0% compared with 30% in the control group. FDG-PET revealed extrapelvic metastases in 7 patients (11%), and PALN relapse occurred in 5 patients (8%). In the control group, 10 patients (16%) experienced PALN relapse.

The overall survival rate between groups was similar (68.2% vs 74.1%, $P = .55$), as well as disease-free survival (66.8% vs 71.0%, $P = .72$). Pretreatment FDG-PET showed that 18 patients had just a primary tumor; their disease-free survival rate of 94.5% was significantly better than that of all other patients.

The authors concluded that despite the lack of differences between the groups, the specificity of FDG-PET findings reduced the need for extended CCRT of nearby regions and can be a helpful pretreatment tool for targeted therapy.

A Single Weekly Tumor Bed Boost Is Comparable to Daily Boost Breast Radiotherapy

Written by Emma Hitt Nichols, PhD

A weekly concomitant boost to the tumor bed during prone breast radiotherapy had comparable efficacy but a trend toward more satisfactory cosmetic outcomes than did daily boost therapy, according to Benjamin Cooper, MD, New York University Radiation Oncology, New York, New York, USA, who presented data from a prospective randomized trial comparing 2 schedules of adjuvant radiotherapy.

A preliminary study demonstrated the safety of prone breast radiotherapy with daily boost radiation. The majority of radiation treatment schedules require a weekend break from therapy, when potential tumor repopulation could occur. The current study investigated an alternate adjuvant therapy schedule with a single weekly boost before the weekend break to combat this repopulation.

A total of 400 patients with stage 0 to II breast cancer were randomly assigned to either a tumor bed boost of 0.5 Gy delivered daily (arm 1) or an equivalent boost of 2 Gy delivered once every Friday (arm 2). Both groups received weeklong intensity-modulated radiation therapy of 40.5 Gy in 15 fractions of the whole breast. All patients had previous partial mastectomy with negative margins and were stratified according to previous chemotherapy and menopause status.

At a median follow-up of 40 months, there were no differences in recurrence-free survival between the 2 arms (98% vs 97%; log-rank $P = .7$). There were no mortalities in either arm due to breast cancer. There were 1 local and 2 distant recurrences in arm 1. There were 3 local and 1 distant recurrences in arm 2. General patient and tumor characteristics were similar in both groups at this time point. Descriptions of appearance outcomes from 280 patients showed a trend that more women in arm 2 reported good or excellent cosmesis than those in arm 1 (88% vs 80%; $P = .08$; Table 1).

Table 1. Patient-Reported Cosmetic Outcomes, No. (%)

Outcome[a]	Arm 1: Daily Boost	Arm 2: Weekly Boost
Excellent (9-10)	56 (39.7)	62 (44.6)
Good (7-8)	57 (40.4)	60 (43.2)
Fair (5-6)	19 (13.5)	14 (10.1)
Poor (0-4)	9 (6.4)	3 (2.2)

[a]Outcomes based on the Radiation Therapy Oncology Group's Late Effects in Normal Tissues–Subjective, Objective, Management and Analytic scales (laboratory and imaging procedures).

The authors concluded that, at this very early time point, there were no differences in clinical outcomes or safety, based on the schedule of concomitant therapy. However, the cosmetic results trended toward superiority in the once-weekly boost, which may be preferable for treatment.

LTAD Improved Outcomes in Prostate Cancer

Written by Emma Hitt Nichols, PhD

Long-term androgen deprivation therapy (LTAD) was found to be more effective in patients with intermediate and high-risk localized prostate cancer than short-term androgen deprivation (STAD) therapy, according to Almudena Zapatero, MD, Hospital Universitario de La Princesa, Madrid, Spain, who presented the findings of a phase 3 trial that compared LTAD with STAD in patients with intermediate and high-risk localized prostate cancer treated with high-dose radiotherapy to determine superiority.

Previous study findings support that overall survival is improved with hormone therapy and conventional-dose radiotherapy in patients with intermediate and high-risk prostate cancer and that biochemical outcomes as well as clinical outcomes were improved with dose-escalated radiotherapy. In the present multicenter, randomized, phase 3 trial, 355 patients were separated

into 2 treatment groups and stratified into 2 risk groups. The STAD treatment arm included 4 months of neoadjuvant and concomitant androgen deprivation with 3-dimensional conformal radiotherapy ≥ 76 Gy, and the LTAD treatment arm included an additional 24 months of adjuvant androgen deprivation. Risk groups were separated into intermediate risk, defined as T1–T2 with a Gleason score of 7 and/or a prostate-specific antigen (PSA) score of 10 to 20, and high risk, defined as T3 and/or a Gleason score of 8 to 10 and/or PSA > 20.

Patients who received previous surgical treatment, neoadjuvant hormonal treatment > 3 months, and concomitant chemotherapy were excluded from study. Baseline characteristics were similar in both treatment groups. Median radiotherapy prostate dose was 78 Gy, and median follow-up was 63 months.

Using intent-to-treat analysis, researchers found the biochemical disease-free survival rate at 5 years to be higher in patients receiving LTAD than in those receiving STAD (89.8% vs 81.3%; $P = .019$). Stratification analysis found biochemical disease-free survival rates to be significantly higher with LTAD in the high-risk group (88.0% vs 75.9%; $P = .058$).

As with biochemical disease-free survival, 5-year overall survival rate was also higher in the LTAD arm compared with the STAD arm (94.8% vs 86.1%; $P = .009$), and the LTAD arm had significantly higher rates in the high-risk group with stratification analysis (96.1% vs 81.5%; $P = .01$).

Unlike previous results, significant differences for 5-year metastasis-free survival were only found in overall analysis and not during the stratification analysis. For overall analysis, the 5-year metastasis-free survival rate was 93.6% for the LTAD arm compared with 83.4% for the STAD arm ($P = .009$).

Multivariate analysis identified 4 independent factors associated with biochemical failure: patient age, treatment arm, radiation dose, and PSA nadir. Biochemical failure was twice as likely in patients treated with STAD than in those treated with LTAD.

A total of 38 deaths occurred during the study, with 5 deaths attributed to prostate cancer. All 5 deaths were in the STAD arm, and they resulted in a significant cause-specific survival outcome ($P = .021$). Toxicity rates were similar in both groups and reported as low by investigators. The most common adverse event was rectal bleeding, which occurred in 17 patients receiving LTAD and 13 patients receiving STAD.

Researchers noted that the 5-year follow-up was short in duration, and studies with longer follow-up are necessary to validate findings. Other limitations mentioned included the limited number of events and the absence of a control arm, but overall study results suggest that LTAD has superior benefit compared with STAD in patients with prostate cancer treated with high-dose radiotherapy, specifically in those with high-risk prostate cancer.

HF of WBI Yields Improved Energy Levels Compared With CF

Written by Dennis Bittner

Previous trials comparing hypofractionation (HF) with conventional fractionation (CF) in whole breast irradiation (WBI) therapy have shown equal rates of local control, overall survival (OS), and cosmesis. Notably, none of these trials included a tumor bed boost as part of the standard of care, although a tumor bed boost is known to decrease risk of locoregional recurrence and is widely used in the United States and Europe.

Simona F. Shaitelman, MD, MEd, University of Texas MD Anderson Cancer Center, Houston, Texas, USA, described results at 6 months from an ongoing randomized trial (MD Anderson Protocol 2010-0559) comparing the impact of HF-WBI with that of CF-WBI (both including a tumor bed boost) on patient-reported cosmetic outcome at 3 years. Secondary objectives are determination of maximal skin and soft tissue toxicities arising from treatment and comparison of patient quality of life.

The protocol employed for CF-WBI was 50 Gy in 25 fractions over a period of 30 to 32 days with a tumor bed boost ranging from 10 to 14 Gy, whereas HF-WBI was administered at 42.56 Gy in 16 fractions over 20 to 21 days with a 10- to 12.5-Gy tumor bed boost. Standardized templates were used to collect data on acute toxicities using Common Terminology Criteria for Adverse Events (CTCAE) v4.0 criteria. In examining short-term (6-month) toxicities, the Late Effects in Normal Tissues Subjective, Objective, Management, and Analytic Scales and the Functional Assessment of Cancer Therapy-Breast (FACT-B) criteria were used in addition to CTCAE v4.0.

Eligibility required stage Tis to T2, N0 to N1, and M0 breast cancer. Patients were excluded if they had any prior history of breast cancer, concurrent bilateral breast cancer, history of prior radiotherapy (RT) to areas of potential overlap, or were pregnant. A total of 287 patients were enrolled and randomized, with 138 receiving HF-WBI. About 75% of patients were white (non-Hispanic), aged 50 to 70 years, had invasive cancers, and were either overweight or obese. Nearly 90% of patients