Acute and Late Toxicity of Uniform Scanning Proton Therapy for Breast Cancer Patients

Yuanshui Zheng[1], Kiran Prahbu[2], Andrew Chang[2], Gary Larson[2], and Carlos Vargas[3]

[1] Atlantic Health System, Morristown, NJ
[2]ProCure Proton Therapy Center, Oklahoma City, Oklahoma, USA [3]Mayo Clinic, Phoenix, AZ

PURPOSE

Proton beams have been increasingly used to treat breast cancer, but their clinical results have been rarely reported. The purpose of this study is to analyze the acute and late toxicity and patterns of failure of uniform scanning proton therapy (USPT) for breast cancer patients.

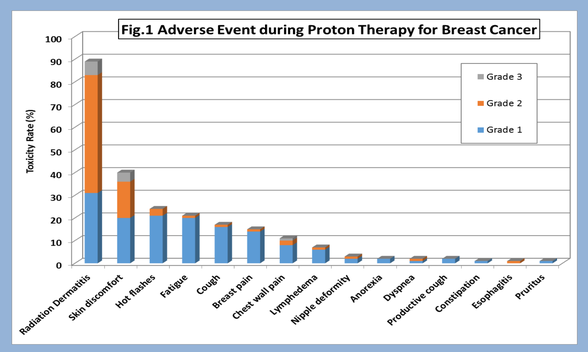
METHODS

- 100 breast cancer patients were included in the study
  - ✓ All female, with 95% white and 5% others
  - ✓ Median age 61.6 yr, range 29 – 78 yr
- Patients were typically treated with
  - ✓ 2 – 4 anterior oblique uniform scanning proton fields
  - ✓ 45 – 50.4 CGE (primary) + 9 – 16.2 CGE (boost) @ 1.8 CGE/fx
- Acute toxicities during treatment:
  - ✓ Skin photos were taken about every 5 fx
  - ✓ Other data obtained from the proton collaborative group (PCG) database
- Post treatment toxicities
  - ✓ Provided by the PCG database
  - ✓ > 6 months after completion of treatment

RESULTS

- No patients had experienced Grade 4 or 5 toxicity.
- The most common adverse effect was dermatitis (89%: 31%-Grade 1, 52%-Grade 2, and 6% Grade 3), followed by skin discomfort (40%), hot flashes (24%), and fatigue (21%), as shown in Figure 1.
- The adverse effects post treatment were hot flashes (3%, Grades 2 & 1), followed by Grade 1 arthralgia (2%), lymphedema (2%), breast pain (2%, and brachial plexopathy (2%), as shown in Figure 2.

RESULTS (CONT'D)



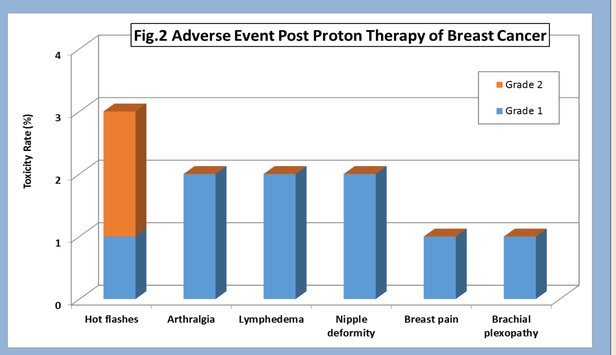


Fig. 3 Photos of skin reaction for a patient during proton therapy.

CONCLUSIONS

- Dermatitis & discomfort were top two acute toxicities
- Late toxicities were rare and of Grade 2 or less
- Overall, USPT was well tolerated and an effective treatment for breast cancer

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yuanshui.zheng@atlantichealth.org