Nature Reviews Urology | Published online 8 Mar 2016; doi:10.1038/nrurol.2016.50

PROSTATE CANCER

Proton therapy delays progression

Patients with prostate cancer often receive treatment with external beam radiation therapy (EBRT); however, this approach can also expose non-malignant tissue to radiation, resulting in adverse events. Now, long-term data are available demonstrating that image-guided proton therapy, which delivers radiation in a more targeted manner, is effective in these patients.

Investigators conducted a retrospective review of the outcomes of 1,327 men receiving proton-beam therapy, with or without other treatments, for localized prostate cancer. After a median follow-up duration of 5.5 years, 99%, 94% and 74% of patients with low-risk, intermediate-risk, or high-risk prostate cancer, respectively, were free from biochemical progression, defined by a serum PSA level of 2 ng/ml greater than nadir serum PSA. According to the latest available follow-up data, median serum PSA in all patients was 0.3 ng/ml, a total of 94 patients (7.7% of the cohort) experienced biochemical failure after a median of 3.3 years.

5.4% of patients had at least one grade ≥3 adverse event within the follow-up period and these were often associated with receiving concomittant treatment with other therapies. Statistically significant associations were observed with concomittant use of androgen-deprivation therapy or prescribed anticoagulants, lower prostate volume ($<40\,cm^3$ versus 40–59 or $\geq 60\,cm^3$), pre-treatment use of α-blockers or pretreatment transurethral resection of the prostate. These statistical associations would suggest these effects are, at least in part, caused by factors other than the use of proton therapy.

Results of this retrospective analysis demonstrate that proton therapy is a safe and effective treatment for prostate cancer; although no direct comparisons with other forms of EBRT can be drawn from these data.

Peter Sidaway

ORIGINAL ARTICLE Bryant, C. *et al.* Five-year biochemical results, toxicity, and patient-reported quality of life following delivery of dose-escalated image-guided proton therapy for prostate cancer. *Int. J. Radiat. Oncol. Biol. Phys.* http://dx.doi.org/10.1016/j.ijrobp.2016.02.038 (2016)