

Takeda H., Kimura G., Akatsuka J., Endo Y., Hayashi T., Kondo Y.

Nippon Medical School, Dept. of Urology, Tokyo, Japan

Introduction & Objectives: Radiation induced side effects can occur 6 months to 10 years after irradiation, causing life-threatening conditions. Hyperbaric Oxygen (HBO) therapy is an effective treatment not responding to conventional management. This study analyzed the clinical factors that affect the efficacy of HBO therapy for prostate cancer patients in treating severe radiation induced hemorrhagic cystitis and proctitis.

Materials & Methods: Clinical records of prostate cancer patients treated with EBRT, and developed RTOG/EORTC grade 3 radiation induced hemorrhagic cystitis and proctitis at Nippon Medical School between 2005 and 2015 were retrospectively reviewed. All patients received HBO therapy in a walk-in multi-place hyperbaric chamber, supplying 100% oxygen 15 L/min using a non-rebreather face mask at 2.5 atmospheres absolute, 60 minutes periods, once daily, five days per week. Therapeutic effects were evaluated after at least 6 months of follow-up using RTOG/EORTC Late Radiation Morbidity Scoring Schema, and statistical analysis performed by the chi-square test. Complete resolution was defined as disappearance of macroscopic hematuria and hemorrhagic stool, and partial resolution as lower RTOG/EORTC score.

Results: A total of 18 patients (10 proctitis and 8 cystitis), mean age 76 years, received an average of 36 (range 1-224) HBO treatments. Complete and partial resolution rates were 50.0% and 27.8%, 4 patients (22.2%) had no improvement and further surgical treatment was carried out in 3 patients (16.7%). One patient (5.6%) had a mild ear-ache but continued therapy. When treated within 1 month from onset of side effect, 53.8% completely cured, and 15.4% showed partial resolution ($p=0.099$), whereas 33.3% were partially cured with treatment delivery after a month. Side effects occurred within 24 months after radiation showed 50% resolution ($p=0.208$), and 22.2% resolved after 20 HBO sessions treated ($p=0.547$), did not affect clinical outcomes.

Conclusions: In our study, treatment effectiveness was correlated with the time from onset of side-effect to start of HBO therapy, associated with efficient clinical improvement. Early primary use of HBO therapy can successfully and safely treat severe radiation induced cystitis and proctitis.