Results of radical radiotherapy with a tumor boost for bladder cancer in patients unfit for surgery

Lotte J. Lutkenhaus, R.M. van Os, A. Bel, M.C.C.M. Hulshof
Department of Radiation Oncology, Academic Medical Center / University of Amsterdam, the Netherlands

i.j.lutkenhaus@amc.uva.nl

For treatment of bladder cancer, a bladder-preserving strategy consisting of superficial surgery and radiochemotherapy, results in a long-term overall survival comparable to cystectomy. However, the medical status of bladder cancer patients regularly contraindicates chemotherapy. This leaves radical radiotherapy as the only treatment option.

**Background and aim**

Aim: to retrospectively analyze the treatment outcome and associated toxicity of both conformal and intensity-modulated radiotherapy (IMRT) using a tumor boost, for locally advanced bladder cancer in patients not suitable for cystectomy.

**Methods**

Patients

- 132 patients
- 14 patients with multiple tumors
- 118 patients
- 67 patients 3D-CRT
- 51 patients IMRT/VMAT

**Follow-up**

- Follow-up during treatment, and regularly after treatment for up to 5 years
- Regular cystoscopic evaluation, with additional investigation after signs of locoregional recurrence
- CTCAE scoring of toxicity (urinary and intestinal), late toxicity > 3 months after start radiotherapy

**Statistical analysis**

- Kaplan-Meier to estimate survival and locoregional control
- Predictors for toxicity: χ² tests

**Results**

**Treatment outcome**

- 3-year overall survival (n = 132): 48.1%
- 3-year locoregional control (n = 118): 73.5%

**Toxicity**

- Acute toxicity: grade 1-4
- Late toxicity: grade 1-4

**Predictors for toxicity**

- Late intestinal toxicity grade ≥ 1
- Acute urinary toxicity grade ≥ 2

**Conclusion**

Radical radiotherapy is feasible and effective for elderly or unfit patients. Three-year locoregional control after radical radiotherapy using a boost technique was 73%.

Low rates for late urinary and intestinal toxicity were found, and patients retained a good bladder function. Toxicity rates were reduced by using IMRT and fiducial markers.