Introduction and Objective

- Radiation therapy (XRT) has been investigated as a possible treatment for high-risk non-muscle invasive bladder cancer (NMIBC) with the goal of bladder preservation, especially with the ongoing Bacillus Calmette-Guerin (BCG) shortage.
- Yet, little is known about the clinical efficacy and the quality of evidence supporting XRT for NMIBC. Herein, we performed a systematic review and meta-analysis to evaluate XRT in the treatment of patients with high-risk NMIBC.

Methods

- Cochrane Central Register of Controlled Trials, EMBASE, MEDLINE, and Web of Science were searched for high-risk NMIBC (high grade T1, T1/Ta with associated risk features: CIS, multifocality, >5 cm in diameter) treated with primary XRT.
- Outcomes evaluated were recurrence-free survival (RFS), cancer-specific-survival (CSS), overall survival (OS), and salvage cystectomy and progression to metastatic disease rates. A meta-analysis was performed to assess outcomes for XRT in NMIBC.

Results highlights

- 13 studies including 746 patients met the search criteria.
- The 5-year rates of RFS, CSS and OS were 54% (95% CI = 38% – 70%), 86% (95% CI = 80% – 92%), and 72% (95% CI = 64% – 79%), respectively.
- 13% of patients proceeded to salvage radical cystectomy.
- 9% developed metastatic disease.
- All studies were of poor quality, comprising single institution and retrospective studies with only one clinical trial.

Conclusions

- XRT for high-risk NMIBC provides some degree of oncologic control, although distant progression was noted.
- In the setting of the low-quality evidence, a prospective clinical trial is needed to clearly define the risks and benefits of this approach.