Prostate

Addition of Androgen-Deprivation Therapy or Brachytherapy Boost to External Beam Radiotherapy for Localised Prostate Cancer: A Network Meta-Analysis of Randomised Trials.

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PURPOSE:

In men with localised prostate cancer, the addition of androgen-deprivation therapy (ADT) or a brachytherapy boost (BT) to external beam radiotherapy (EBRT) have been shown to improve various oncologic end points. Practice patterns indicate that those who receive BT are significantly less likely to receive ADT, and thus we sought to perform a network meta-analysis to compare the predicted outcomes of a randomised trial of EBRT plus ADT versus EBRT plus BT.

MATERIALS AND METHODS:

A systematic review identified published randomised trials comparing EBRT with or without ADT, or EBRT (with or without ADT) with or without BT, that reported on overall survival (OS). Standard fixed-effects meta-analyses were performed for each comparison, and a meta-regression was conducted to adjust for use and duration of ADT. Network meta-analyses were performed to compare EBRT plus ADT versus EBRT plus BT. Bayesian analyses were also performed, and a rank was assigned to each treatment after Markov Chain Monte Carlo analyses to create a surface under the cumulative ranking curve.

RESULTS:

Six trials compared EBRT with or without ADT (n = 4,663), and three compared EBRT with or without BT (n = 718). The addition of ADT to EBRT improved OS (hazard ratio [HR], 0.71 [95% CI, 0.62 to 0.81]), whereas the addition of BT did not significantly improve OS (HR, 1.03 [95% CI, 0.78 to 1.36]). In a network meta-analysis, EBRT plus ADT had improved OS compared with EBRT plus BT (HR, 0.68 [95% CI, 0.52 to 0.89]). Bayesian modelling demonstrated an 88% probability that EBRT plus ADT resulted in superior OS compared with EBRT plus BT.

CONCLUSION:

Our findings suggest that current practice patterns of omitting ADT with EBRT plus BT may result in inferior OS compared with EBRT plus ADT in men with intermediate- and high-risk prostate cancer. ADT for these men should remain a critical component of treatment regardless of radiotherapy delivery method until randomised evidence demonstrates otherwise.