1073 Patterns of Death Following Permanent Prostate Brachytherapy

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Purpose/Objective(s): To evaluate patterns of death including prostate cancer, cardiovascular and second malignancy (non-prostate cancer) mortality in low (LR), intermediate (IR) and high (HR) patients undergoing permanent prostate brachytherapy with or without supplemental therapies.

Materials/Methods: From April 1995 through November 2004, 1,354 consecutive patients underwent brachytherapy for clinical stage T1b-T3a (2002 AJCC) prostate cancer. All patients underwent brachytherapy more than 3 years prior to analysis. Androgen deprivation therapy was administered to 532 patients (39.3%). Of those patients, 361 received ADT for ≤6 months while 171 received >6 months of ADT. Seven hundred and three patients (51.9%) received supplemental XRT. The median and mean follow-up was 5.4 and 5.7 years, respectively. Multiple clinical, treatment and dosimetric parameters were evaluated as predictors of cause-specific, biochemical progression-free and overall survival.

Results: For the entire cohort, the 11-year cause-specific survival was 97.0% (99.7%, 99.0% and 90.1% for LR, IR and HR). The overall survival for the entire cohort was 74.8% (82.5%, 78.3% and 61.9% for LR, IR and HR respectively). The cumulative death rate for cardiovascular disease was 11.5% (8.7%, 9.3% and 19.8% for LR, IR and HR). The death rate from second malignancies (non-prostate cancer) was 7.2% and was not substantially different when stratified by risk group. Death from all other causes was 6.5% for the entire cohort but 1.3%, 5.0% and 10.8% for LR, IR and HR. Of the risk groups, high risk patients were most likely to receive ADT, especially prolonged courses (>6 months). In multivariate analysis, death from prostate cancer was best predicted by Gleason score and risk group while death due to cardiovascular, non-prostate cancer and all other causes were most closely related to patient age and tobacco.

Conclusions: Death from prostate cancer represented approximately 10% of all deaths with cardiovascular mortality predominating. In particular, overall survival was poorest in the high risk group. Although high risk patients were most likely to die of prostate cancer, the divergence in overall survival between high risk and lower risk patients was primarily due to an excess of cardiovascular deaths. Changes in lifestyle to improve cardiovascular health including cessation of all tobacco products and minimization of ADT use may improve overall survival in patients with clinically localized prostate cancer.

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