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A new risk classification system for therapeutic decision making with intermediate-risk prostate cancer patients undergoing dose-escalated external-beam radiation therapy.

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Abstract

BACKGROUND: The management of intermediate-risk prostate cancer (PCa) is controversial, in part due to the heterogeneous nature of patients falling within this classification.

OBJECTIVE: We propose a new risk stratification system for intermediate-risk PCa to aid in prognosis and therapeutic decision making.

DESIGN, SETTING, AND PARTICIPANTS: Between 1992 and 2007, 1024 patients with National Comprehensive Cancer Network intermediate-risk PCa and complete biopsy information were treated with definitive external-beam radiation therapy (EBRT) utilizing doses ≥ 81 Gy. Unfavorable intermediate-risk (UIR) PCa was defined as any intermediate-risk patient with a primary Gleason pattern of 4, percentage of positive biopsy cores (PPBC) ≥ 50%, or multiple intermediate-risk factors (IRFs; cT2b-c, prostate-specific antigen [PSA] 10-20, or Gleason score 7).

INTERVENTION: All patients received EBRT with ≥ 81 Gy with or without neoadjuvant and concurrent androgen-deprivation therapy (ADT).

OUTCOME MEASUREMENTS AND STATISTICAL ANALYSIS: Univariate and multivariate analyses were performed using a Cox proportional hazards model for PSA recurrence-free survival (PSA-RFS) and distant metastasis (DM). PCa-specific mortality (PCSM) was analyzed using a competing-risk method.

RESULTS AND LIMITATIONS: Median follow-up was 71 mo. Primary Gleason pattern 4 (hazard ratio [HR]: 3.26; p<0.0001), PPBC ≥ 50% (HR: 2.72; p=0.0007), and multiple IRFs (HR: 2.20; p=0.008) all were significant predictors of increased DM in multivariate analyses. Primary Gleason pattern 4 (HR: 5.23; p<0.0001) and PPBC ≥ 50% (HR: 4.08; p=0.002) but not multiple IRFs (HR: 1.74; p=0.21) independently predicted for increased PCSM. Patients with UIR disease had inferior PSA-RFS (HR: 2.37; p<0.0001), DM (HR: 4.34; p=0.0003), and PCSM (HR: 7.39; p=0.007) compared with those with favorable intermediate-risk disease, despite being more likely to receive neoadjuvant ADT. Short follow-up and retrospective study design are the primary limitations.

CONCLUSIONS: Intermediate-risk PCa is a heterogeneous collection of diseases that can be separated into favorable and unfavorable subsets. These groups likely will benefit from divergent therapeutic paradigms.

KEYWORDS: Androgen deprivation; Dose escalation; Intermediate risk; Prostate cancer; Risk stratification

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