Personalizing localized prostate cancer: Validation of a combined clinical cell-cycle risk (CCR) score threshold for prognosticating benefit from multimodality therapy

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Objective & Methods

• We evaluated the ability of the Prolaris® combined clinical cell-cycle risk score (CCR) to prognosticate the risk of prostate cancer metastasis and to help determine which patients may safely forgo multimodality therapy.

• Study cohort: Multi-institutional database of Prolaris®-tested men with intermediate- or high-risk prostate cancer (N=718).

• A CCR “multimodality threshold” score of >2.112 was pre_defined using an independent cohort of men with NCCN unfavorable intermediate- or high-risk disease and known CCR scores.

• Multimodality was defined as combined use of androgen deprivation therapy with radiation (RT) or surgery, or surgery with adjuvant RT.
• CCR predicted metastasis (HR=3.75 [2.7, 5.2], P=1.6x10^{-16}), and remained highly predictive after adjusting for the effect of CAPRA (HR=4.30 [2.65, 6.96], P=4.4x10^{-8}).

**FIGURE 1**

(A) Risk prediction for metastasis at 10 years, stratified by single or multimodality therapy and by CCR;

(B) Absolute risk reduction and number needed to treat using multimodality versus single modality therapy, as CCR increases.
Validation of the Threshold

**Figure 2.** Kaplan-Meier risk estimates for (A) metastasis and (B) progression, stratified by CCR above and below the threshold, and by single or multimodality therapy.

**Conclusion:** The CCR multimodality threshold score prognosticates a clinically meaningful benefit for those who receive multimodality versus single-modality treatment.