

EVALUATING CONTEMPORARY ROLE OF DECIPHER RISK GROUPS (22-GENE TISSUE BIOMARKER) TO PREDICT ONCOLOGICAL AND FUNCTIONAL OUTCOMES AFTER ROBOTIC ASSISTED RADICAL PROSTATECTOMY

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Introduction

The Decipher 22-genomic classifier (DGC) is a tissue-derived RNA-based biomarker that utilizes gene signatures for risk stratification of prostate cancer. Our study evaluated the correlation between the DGC risk groups and Robotic assisted Radical Prostatectomy (RARP) specimen pathology, along with oncological and functional outcomes across the group.

Methods

We included 1673 patients who underwent RP at our center between January 2015 and December 2022. The DGC risk group was determined based on the score derived from RNA genomic marker expression, assessed from the index lesion (highest Gleason score) in prostate needle biopsy tissues. Cumulative incidence curves for time-to-event variables were estimated using the Kaplan-Meier method, with group differences evaluated using the log-rank test. Statistical significance was

Results

A high Decipher Genomic Classifier (DGC) risk group is significantly associated ($P < 0.001$) with adverse pathological features in radical prostatectomy (RP) specimens, including extracapsular extension (pT3a/pT3b) and nodal involvement (pN1). The cumulative BCR rate was significantly higher in the high-risk DGC group than in the other groups ($P < 0.001$). Additionally, the high-risk DGC group had significantly worse potency outcomes ($P < 0.001$), whereas the low-risk DGC group demonstrated the best continence rates ($P = 0.003$).

Stratification based on both Decipher and CAPRA-S risk groups provided a notably improved risk assessment after RP (C-index = 0.66) compared with CAPRA-S alone (C-index = 0.62).

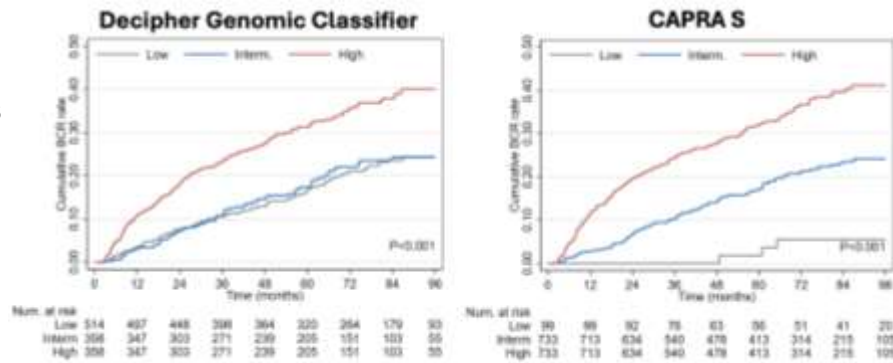


Figure 1: Biochemical recurrence across DGC and CAPRA-S risk groups

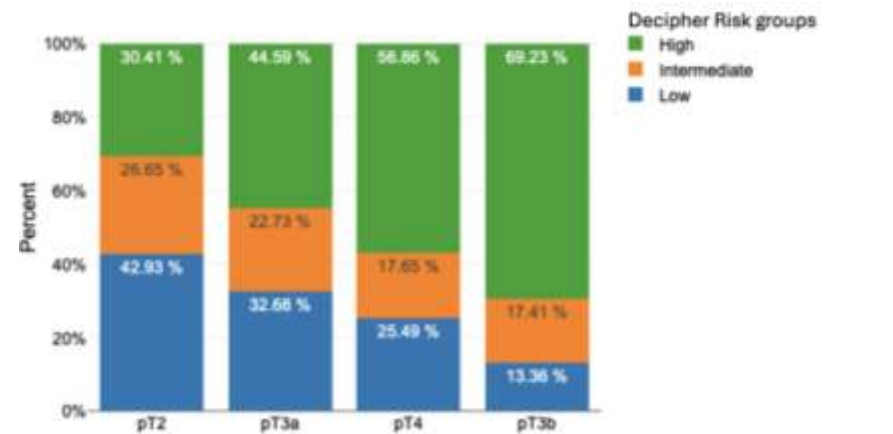


Figure 3: Distribution of Decipher scores across Pathological tumor stage

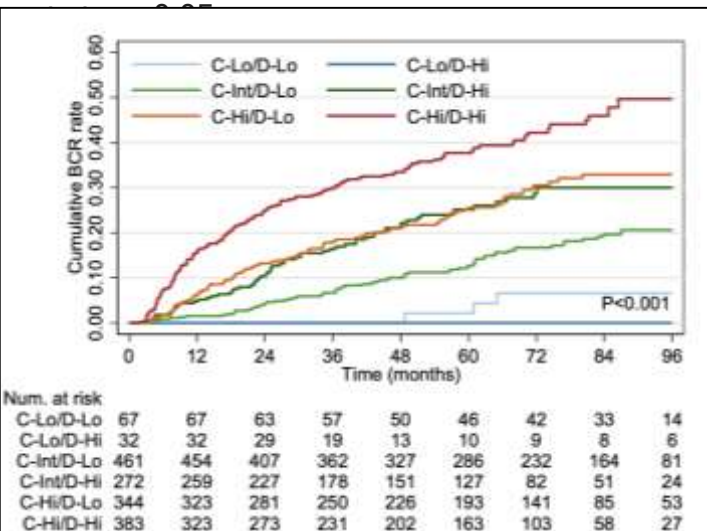


Figure 2: Stratification of BCR based on combined DGC and CAPRA-S groups. The DGC Low and intermediate groups were merged into a single group (D-Lo) due to their similar BCR rates. C-Lo, C-Int, and C-Hi represent the low, intermediate and high CAPRA-S groups, respectively

Conclusion

- Preoperative DGC facilitates the identification of prostate cancer patients at risk for adverse pathological features in RP specimens and an elevated likelihood of biochemical recurrence (BCR).
- The integration of genomic risk stratification with clinicopathological variables improves prognostic accuracy, enabling the identification of patients at higher risk of disease recurrence who may require intensified treatment strategies, potentially affecting postoperative functional outcomes.