P1009

Impact of decipher biopsy testing on clinical outcomes in localized prostate cancer in a prospective statewide collaborative

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Introduction & Objectives: Decipher Biopsy is a commercially available gene expression classifier used to assist in initial risk stratification. Currently, there is no prospective data assessing its clinical utility in men with newly diagnosed prostate cancer (PCa). Our study aims to assess the clinical utility of Decipher Biopsy in localized PCa patients in a prospective statewide collaborative registry.

Materials & Methods: Men who underwent testing with Decipher Biopsy between February 2015 – October 2019 were tracked through the prospective Michigan Urological Surgery Improvement Collaborative. After linking Decipher scores with clinical and pathological variables, patients were stratified as either high-risk or low/intermediate Decipher scores. We sought to evaluate two outcomes: 1) Time to treatment (TTT) for men initially managed on active surveillance (AS) and 2) Time to treatment failure (TTF) after definitive treatment. Cumulative incidence curves for TTT and TTF were constructed using Kaplan-Meier estimates. Multivariable Cox proportional hazard models were used to evaluate the independent association of high-risk Decipher scores with progressing from AS to radical therapy and treatment failure after definitive treatment.

Results: 855 patients underwent Decipher Biopsy testing during the study time period. Men with high-risk Decipher scores had shorter TTT and TTF compared to men with low/intermediate risk Decipher scores (Fig.1A-B). Additionally, after adjusting for NCCN risk group, age, PSA, prostate volume, BMI, and percent positive cores, a high-risk Decipher score was independently associated with a significantly shorter TTT for patients initially on AS, (HR 2.51, 95% CI 1.52-4.13 p <0.001) and TTF (HR 2.98, 95%CI 1.22-7.29, p=0.01).

Conclusions: In the context of a prospective statewide registry, Decipher Biopsy was strongly and independently associated with a shorter duration on AS and freedom from biochemical failure. These real-world data support the clinical utility of Decipher Biopsy.