Reduction in Therapeutic Burden from Use of CCP Test in Treatment Decisions among Newly Diagnosed Prostate Cancer Patients Independent of Charlson Comorbidity Index (CCI)

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OBJECTIVES

- Risk of prostate cancer-specific disease progression and mortality may be assessed using the cell cycle progression (CCP) test.
- The Cell Cycle Progression (CCP) score was developed and validated to provide prognostic information to prostate cancer patients in all risk groups.[1,2]
- A large prospective registry (P1000, n=1,206) recently showed that the CCP test results influence treatment decisions.[3]
- Here, we assess whether the CCI, an estimate of the severity of patient comorbid conditions, was correlated with these changes in treatment decisions.

METHODS

MOLECULAR TESTING

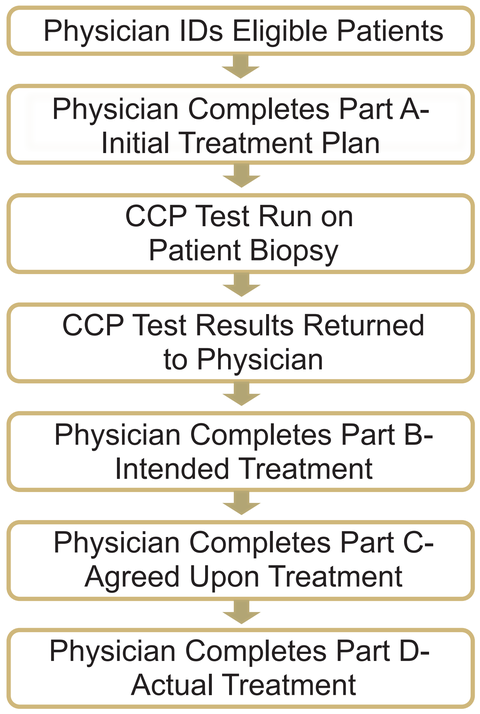
- The CCP test is a validated molecular assay that measures the RNA expression of 46 genes to generate a numeric CCP score.
- The CCP score is calculated by measuring the average RNA expression of 31 cell cycle progression genes normalized by the average expression of 15 housekeeping genes as quantified by RT-PCR.

STUDY DESCRIPTION

- P1000 included newly diagnosed (≤ 6 months) patients with untreated clinically localized prostate cancer.[3]
- Physicians completed a series of questionnaires to record their treatment recommendations (Figure 1), including:
  - Initial recommendations (pre-test)
  - Actual treatment (3–6 months of clinical follow-up)
- The CCI was recorded as part of the pre-test questionnaire.
- Changes in treatment decisions were examined with multinomial logistic regression modeling with CCI and CCP as continuous covariates along with other clinical factors.

RESULTS

Figure 1. Study Schema



- The CCP score resulted in a change in actual treatment administered in 48% of patients, with treatment changes stratified by CCI in Table 1.
- Our analysis shows that the CCP test result is a significant covariate, while the CCI is not (univariate: p=0.0153 vs p=0.1831, multivariate: p=0.0131 vs p=0.1528).
- The CCI x Age interaction term is significant (p=0.0207), showing that CCI combined with age is correlated with changes in treatment.
- However, the CCI x CCP score (p=0.5918) and CCI x Risk Percentile (p=0.5191) interaction terms are not significant.

Table 1. Treatment Change by CCI

CCI	Decrease	No Change	Increase	Total
0	289 (33.49%)	462 (53.53%)	112 (12.98%)	863
1	80 (37.74%)	105 (49.53%)	27 (12.74%)	212
2	24 (35.29%)	36 (52.94%)	8 (11.76%)	68
≥3	22 (34.92%)	33 (52.38%)	8 (12.70%)	63
Total	415	636	155	1206

CMH test (row-mean scores differ):
Unadjusted p=0.7933; Adjusted (risk percentiles): p=0.7546; Adjusted (AUA risk): p=0.9704

CONCLUSIONS

- The lack of univariate and multivariate statistical significance implies that changes in treatment due to the CCP test are independent of CCI.

REFERENCES

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Presented at AUA Western October 23, 2016