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Prolaris Score Prediction of Adverse Pathology Following Radical Prostatectomy

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Introduction

- Cell Cycle Progression (CCP) score, or the Prolaris score, has been shown to independently predict cancer related death, biochemical recurrence, and metastases in patients with prostate cancer^{1,2}
- The association between CCP score and adverse pathology after radical prostatectomy has not yet been evaluated

Methods

- Patients who had received CCP testing and undergone radical prostatectomy between 2015 and 2018 were assessed for adverse pathology
- Adverse pathology was defined as any of the following:
 - post-operative Gleason score of 8 or greater
 - positive lymph nodes
 - extracapsular extension (stage pT3a) or seminal vesicle invasion (stage pT3b)
- Positive surgical margins were assessed as a secondary objective
- Exclusion criteria: no CCP testing or CCP results not in our records
- Logistic regression was performed using SPSS to ascertain the relationship between CCP score with adverse pathology and positive margins.

Results

- 173 patients met inclusion criteria, of which 53 demonstrated adverse pathology
- Patients from most American Urologic Association risk categories were represented, with the majority being intermediate risk (Table 1)
- The number of patients with lymph node involvement, Gleason stage of 8 or higher, extracapsular extension, and seminal vesicle invasion is shown in Table 2
- Based on binary logistic regression testing, CCP was positively associated with adverse pathology, with an odds ratio per 1 CCP units of 3.246 ($p < 0.001$)
- There was not a significant relationship between CCP score and positive margins.

Table 1: Breakdown of patients by American Urologic Association risk category

Low	28	16.18%
Intermediate	110	63.58%
High	32	18.50%
High/Very high	2	1.16%
Not found	1	0.58%

Table 2: Patients with adverse pathology

Positive lymph nodes	1	0.58%
Gleason stage of 8 or greater	13	7.51%
Extracapsular extension	32	18.39%
Seminal vesicle invasion	14	8.05%

Conclusions

- CCP scores are positively correlated with adverse pathology after radical prostatectomy
- CCP may be a useful tool to predict adverse pathology
- This information may help men with low risk prostate cancer make a more educated decision regarding active surveillance versus immediate therapy
- Further analysis adjusting for patient risk should be done to confirm these results.

References

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