Title

ACP Journal Club. The 6-item CAPRA-S score predicted cancer recurrence after radical prostatectomy.

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The 6-item CAPRA-S score predicted cancer recurrence after radical prostatectomy

Punnen S, Freedland SJ, Presti JC Jr, et al. ***Multi-institutional validation of the CAPRA-S score to predict disease recurrence and mortality after radical prostatectomy.*** *Eur Urol. 2013;Apr 8 [Epub ahead of print].*

Clinical impact rating: ★★★★★☆☆

Question

How well does the Cancer of the Prostate Risk Assessment Postsurgical (CAPRA-S) score predict recurrence after radical prostatectomy?

Methods

Design: Cohort study validating a previously developed risk score (CAPRA-S) using data from the Shared Equal Access Regional Cancer Hospital database with a median follow-up of 58 months.

Setting: 4 US Department of Veterans Affairs medical centers.

Patients: 2670 men (mean age 62 y) who had radical prostatectomy. Exclusion criteria were neoadjuvant treatment or missing data for calculating CAPRA-S score.

Description of prediction guide: The CAPRA-S score (score range 0 to 12) included 6 variables: serum prostate-specific antigen (PSA) level and Gleason score (0 to 3 points each), surgical margins and seminal vesicle invasion (0 to 2 points each), and extracapsular extension and lymph node involvement (0 or 1 point each). CAPRA-S score 0 to 2 = low risk for recurrence, 3 to 5 = intermediate risk, and ≥ 6 = high risk.

Outcome: Biochemical recurrence (single PSA level > 0.2 ng/mL, 2 PSA levels of 0.2 ng/mL, or secondary treatment of an elevated postoperative PSA level) and prostate cancer mortality.

Main results

34% of men had prostate cancer recurrence, and 2.3% died from prostate cancer. The CAPRA-S score predicted prostate cancer recurrence (Table) with a concordance (c)-index of 0.73; the c-index for prostate cancer mortality was 0.85. 72% of men at low risk for recurrence, 39% at intermediate risk, and 17% at high risk were progression-free at 5 years.

The CAPRA-S score for predicting recurrence after radical prostatectomy*

CAPRA-S score	Number of patients	Outcomes	
		Progression-free (95% CI) at 3 y	Progression-free (CI) at 5 y
0	413	89% (85 to 92)	82% (75 to 87)
1	413	75% (69 to 80)	69% (60 to 76)
2	440	72% (67 to 77)	64% (56 to 71)
3	392	60% (53 to 65)	49% (40 to 58)
4	332	47% (40 to 53)	37% (28 to 45)
5	232	38% (30 to 45)	27% (18 to 37)
6	167	33% (24 to 42)	30% (20 to 40)
7	110	18% (10 to 27)	18% (10 to 27)
8	63	12% (5 to 24)	0%
≥ 9	108	7.2% (3 to 15)	0%

**CAPRA-S = Cancer of the Prostate Risk Assessment Postsurgical; CI defined in Glossary.*

Conclusion

The 6-item Cancer of the Prostate Risk Assessment Postsurgical score predicted cancer recurrence after radical prostatectomy.

Sources of funding: US Department of Veterans Affairs; US Department of Defense; Prostate Cancer Research Program; NIH Specialized Programs of Research Excellence; Georgia Cancer Coalition; American Urological Association Foundation/Astellas Rising Star in Urology Award.

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Commentary

Radical prostatectomy is an established treatment method for clinically localized prostate cancer. Although widely overused in patients with low- and very low-risk prostate cancer, it may also be underutilized in patients with higher-risk disease. After surgery, a subset of men face impairment of their urinary and sexual function–related quality of life; however, all contend with the risk for cancer recurrence, which ultimately affects approximately one third of men—a risk that this study seeks to better define.

The validation study by Punnen and colleagues reports favorable performance of the CAPRA-S model in predicting risk for biochemical recurrence in a separate cohort of veteran patients. The model's strength lies in its straightforward use, building on such readily available predictor variables as preoperative PSA level, Gleason score, and margin status. On these grounds, it compares favorably with other models.

The study has several shortcomings. Follow-up was short, considering that appropriate patient selection for local treatment with curative intent today implies an estimated life expectancy of 10 to 15 years (1). The event rate was low, as reflected in the wide confidence intervals around the point estimates at 5 years. Finally, the focus on biochemical recurrence as the main outcome is a limitation: Detectable and rising PSA levels after radical prostatectomy are only surrogate markers for outcomes that should concern patients, such as disease-specific survival or clinical signs and symptoms associated with local or distant recurrence. Although data were available for disease-specific survival, they are based on few events. Extended follow-up will strengthen the value of the CAPRA-S scoring system. In light of the prolonged intervals from prostate cancer diagnosis and treatment to disease-related complications and death, the answers to these kinds of clinical questions have to come from observational studies, such as that by Punnen and colleagues.

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Reference

1. **Wilt TJ, Brawer MK, Jones KM, et al; Prostate Cancer Intervention versus Observation Trial (PIVOT) Study Group.** Radical prostatectomy versus observation for localized prostate cancer. N Engl J Med. 2012;367:203-13.