OBJECTIVE: To determine whether there are subsets of men with pathological high grade prostate cancer (Gleason score 8-10) with particularly high or low 2-year biochemical recurrence (BCR) risk after radical prostatectomy (RP) when stratified into groups based on combinations of pathological features, such as surgical margin status, extracapsular extension (ECE) and seminal vesicle invasion (SVI).

MATERIALS AND METHODS: We identified 459 men treated with RP with pathological Gleason score 8-10 prostate cancer in the SEARCH database. The men were stratified into five groups based on pathological characteristics: group 1, men with negative surgical margins (NSMs) and no ECE; group 2, men with positive surgical margin (PSMs) and no ECE; group 3, men with NSMs and ECE; group 4, men with PSMs and ECE; and group 5, men with SVI. Cox proportional hazards models and the log-rank test were used to compare BCR among the groups.

RESULTS: At 2 years after RP, pathological group was significantly correlated with BCR (log-rank, P < 0.001) with patients in group 5 (+SVI) having the highest BCR risk (66%) and those in group 1 (NSMs and no ECE) having the lowest risk (14%). When we compared groups 2, 3, and 4, with each other, there was no significant difference in BCR among the groups (~50% 2-year BCR risk; log-rank P = 0.28). Results were similar when adjusting for prostate-specific antigen, age, pathological Gleason sum and clinical stage, or after excluding men who received adjuvant therapy.

CONCLUSIONS: In patients with high grade (Gleason score 8-10) prostate cancer after RP, the presence of either PSMs, ECE or SVI was associated with an increased risk of early BCR, with a 2-year BCR risk of ≥50%. Conversely, men with organ-confined margin-negative disease had a very low risk of early BCR despite Gleason score 8-10 disease.

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KEYWORDS: Gleason score 8-10; biochemical recurrence; extracapsular extension; positive surgical margin; prostatic neoplasm; seminal vesicle invasion