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PROGNOSTIC SIGNIFICANCE OF GLEASON GRADE 5 IN PROSTATE CANCER WITH GLEASON SCORE 8

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Background: Prostate Cancer (PC) with Gleason Score (GS) 8 appears to be a heterogeneous group contrary to the International Society of Urological Pathology recommendation. We compared the oncological outcomes of PC with GS 5+3/3+5 versus GS 4+4 identified at Radical Prostatectomy (RP) specimen.

Materials & Methods: We queried our prospectively maintained RP database (2001-2014) and identified 208 PC patients with GS8 in the final RP specimen. We excluded 37 patients who were lost to follow-up. The GS8 cohort was divided into two groups - GS 5+3/3+5 and GS 4+4 for analysis. We compared the Biochemical Recurrence (BCR) (PSA>0.2 ng/ml), cancer specific mortality (CSM) and All Cause Mortality (ACM) between the groups and Kaplan-Meier method was used to compare the Biochemical Recurrence Free survival (BCRFS) and Cancer Specific Survival (CSS). Multivariate cox regression model was used to define the risk of ACM and CSM between the two groups adjusted for age, PSA and clinical stage.

Results: The clinical and cancer characteristics of the study population are shown in table 1. Significantly higher peri-neural invasion in the RP specimen was noted in GS 5+3/3+5 group (95.3% vs 81.3%, $p = 0.01$). The overall median follow-up (IQR) was 6.7 years (2.9 – 8.7). Compared to GS 4+4, BCR was a significantly higher in GS 5+3/3+5 (35.9% vs 20.6%, $p = 0.027$). The risk of CSM (HR - 1.5, CI:0.6 - 4.1, $p = 0.4$) and ACM (HR - 1.8, CI:0.9 - 3.7, $p = 0.1$) were similar between the groups. There was no statistically significant difference in BCRFS and CSS between the two groups. However, GS 5+3 had a significantly poor CSS compared to GS 3+5 and GS 4+4 ($p = 0.03$) (Figure 1)

Conclusion: Presence of Gleason grade 5 can have an adverse prognostic risk on the oncological outcomes of PC with GS 8. Subcategorizing GS8 based on presence of grade 5 should be further explored.

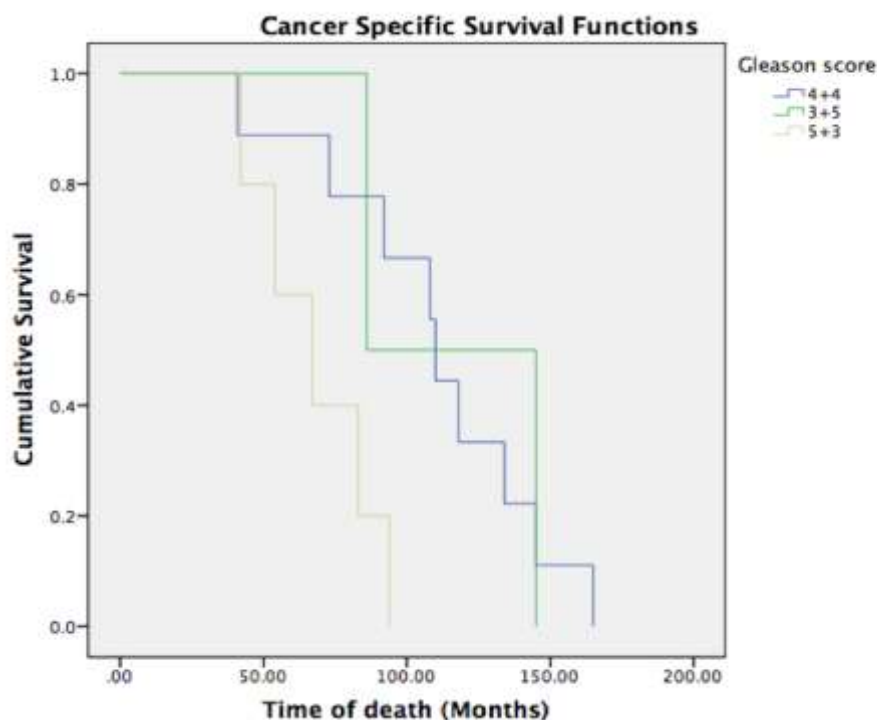


Figure 1

Table 1: Clinical and cancer characteristics of the study population

Variable	GS 5+3/3+5	GS 4+4	p value
Number of patients	64	107	
Mean Age (SD) Years	61.6 (6.4)	62.8 (6.1)	0.3
Mean Body Mass Index (SD)	25.7 (3.3)	25.5 (3.3)	0.8
Mean PSA (SD) ng/ml	12.1 (8.8)	10.8 (6.7)	0.3
Mean Prostate volume (SD) cc	48.1 (14.1)	56.3 (22.5)	0.02
Prostate Biopsy GS (%)			0.3
6 (3+3)	16 (24)	17 (15)	
7 (3+4 / 4+3)	26 (41)	41 (39)	
8 (4+4 / 3+5 / 5+3)	19 (30)	45 (42)	
9 (4+5 / 5+4)	3 (5)	4 (4)	
Clinical stage (%)			0.5
T1c	30 (47)	46 (43)	
T2a	26 (41)	48 (45)	
T2b	8 (13)	9 (8)	
T2c		2 (2)	
T3a		2 (2)	
Perineural invasion at RP (%)	61 (95)	87 (81)	0.01
Extraprostatic extension at RP (%)	38 (60)	56 (52)	0.3
Mean Follow-up (SD) months	77.6 (36.2)	74.7 (45.8)	0.3
Biochemical Recurrence (%)	23 (36)	22 (21)	0.03
All Cause Mortality (%)	16 (25)	16 (15)	0.1
Cancer Specific Mortality (%)	7 (11)	9 (8)	0.6