



# Real-World Outcomes of Testicular Germ Cell Tumors in Pakistan: A Retrospective Study from a Tertiary Care Center

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## ● BACKGROUND

Most outcome data on testicular germ cell tumors (GCTs) come from high-income countries, and very little is known about how patients do in Pakistan. We reviewed our own patients to describe their disease, treatment and survival.

## ● METHODS

- Retrospective review at Aga Khan University Hospital, Karachi (2020–2024)
- Adults (≥18 years) with testicular GCTs
- PFS and OS estimated by Kaplan-Meier
- Prognostic factors assessed by Cox regression

## RESULTS

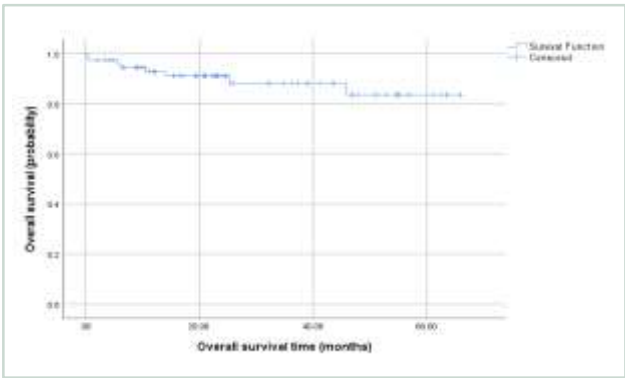
### ● PATIENT, DISEASE & TREATMENT CHARACTERISTICS (N = 73)

| Variable                           | n (%)     |
|------------------------------------|-----------|
| <b>Age</b>                         |           |
| Mean age at diagnosis, yrs         | 33        |
| <b>Tumor Type</b>                  |           |
| Seminoma                           | 36 (49.3) |
| Non-Seminoma (NSGCT)               | 15 (20.5) |
| Mixed GCT                          | 22 (30.1) |
| <b>Tumor Stage (grouped, AJCC)</b> |           |
| Stage I                            | 32 (43.8) |
| Stage II                           | 14 (19.2) |
| Stage III                          | 23 (31.5) |
| N/A                                | 4 (5.5)   |

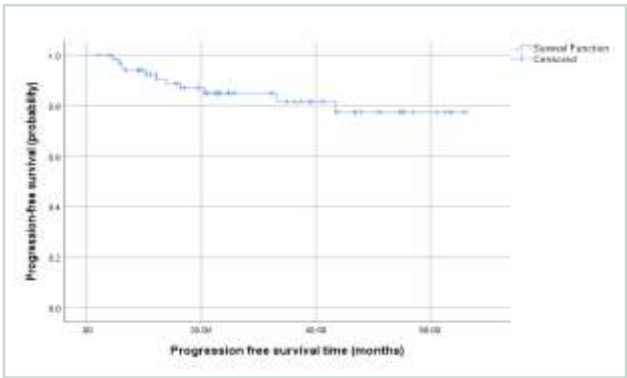
| Variable                                                  | n (%)     |
|-----------------------------------------------------------|-----------|
| <b>Tumor Location</b>                                     |           |
| Gonadal                                                   | 67 (91.8) |
| Extragonadal                                              | 6 (8.2)   |
| <b>Risk Stratification, IGCCCG (Stage IIA–IIIC, n=37)</b> |           |
| Good                                                      | 15 (40.5) |
| Intermediate                                              | 13 (35.1) |
| Poor                                                      | 9 (24.3)  |
| <b>Surgery</b>                                            |           |
| Any surgery                                               | 65 (89.0) |
| – Orchidectomy                                            | 57 (78.1) |
| No surgery                                                | 8 (11.0)  |

| Variable                           | n (%)     |
|------------------------------------|-----------|
| <b>Chemotherapy</b>                |           |
| Received                           | 58 (79.5) |
| – BEP regimen                      | 36 (49.3) |
| None                               | 15 (20.5) |
| <b>Chemotherapy Cycles</b>         |           |
| Most common: 4 cycles              | 33 (45.2) |
| None                               | 15 (20.5) |
| <b>Radiotherapy</b>                |           |
| Received                           | 3 (4.1)   |
| None                               | 70 (95.9) |
| <b>Disease Status at Follow-up</b> |           |
| Disease-free                       | 60 (82.2) |
| Recurrence/progression             | 11 (15.1) |
| Missing/unknown                    | 2 (2.7)   |

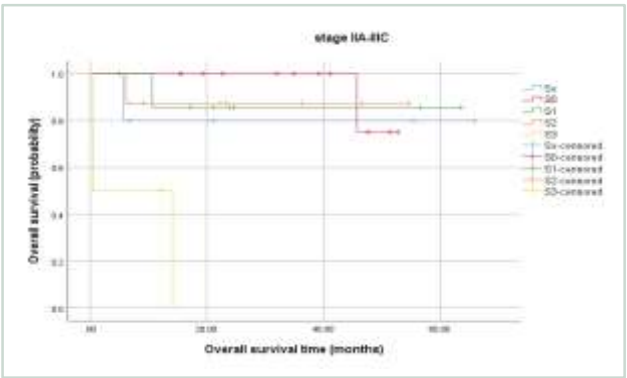
### ● SURVIVAL OUTCOMES (KAPLAN-MEIER)



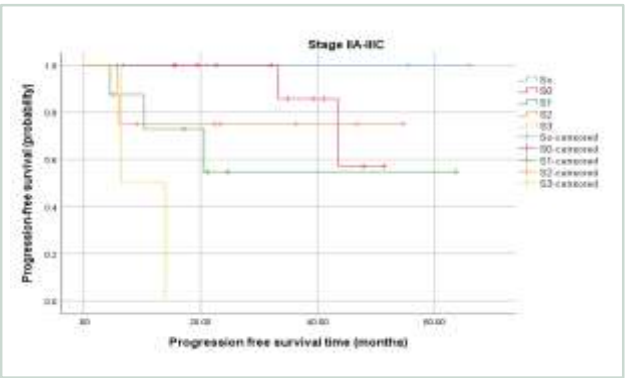
Overall Survival – Whole Cohort



Progression-Free Survival – Whole Cohort



OS and PFS by Serum tumor markers-Stage (IIA–IIIC)



## ● KEY FINDINGS

- Seminoma, stage IA disease and S0 markers were most common; BEP was the usual regimen.
- Mean PFS 55.66 months (SE 2.79; 95% CI 50.18–61.14); mean OS 58.5 months (SE 2.46; 95% CI 53.67–63.33).
- Patients with S3 markers had clearly worse PFS and OS, with early drops in survival (HR 2.70, p = 0.006).

## ● CONCLUSION

- Our patients did well overall, in line with the high cure rates known for GCTs.
- Tumor marker level after orchidectomy was the strongest predictor of outcome.

**Acknowledgment:** We thank the patients whose records made this study possible.  
**Conflict of interest:** None.