

**FC-032****The efficacy of TNM staging in Ewing's sarcoma**

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Introduction: Staging systems should allow comparison of cases, guide treatment, allow estimation of prognosis, and aid research, especially in the treatment of rare cancer types. The TNM staging system, when applied to sarcoma, stratifies tumours on size, histological grade, nodal or skip lesions, and metastases. The aim of this study was to assess the efficacy of the TNM staging system in guiding prognosis in Ewing's sarcoma.

Methods: Patients were identified from the institutions database. All patients treated surgically for Ewing's sarcoma of bone or soft tissue between 1980 and 2012 were included. The affect of age, chemotherapy response and TNM stage on survival was assessed. The population comprised 277 patients with a mean age of 17.5 years (range 1-62) and a mean follow-up of 98 months (6-385 months). There were 244 stage II (40 IIa, 204 IIb) and 33 stage IV. Due to low numbers, stage 1 (0 patients) and stage 3 (5 patients) were excluded. Patients were stratified according to chemotherapy response as 100% or less than 100%. Survival was calculated by the Kaplan-Meier method.

Results: No difference in survival was demonstrated between stage IIa and IIb ($p=0.57$). The 5-year survival for stage II patients was 72% (95% CI 66-78), compared to 15.5% (95% CI 3-28) for stage IV. The 5-year survival for patients with stage II disease and a poor response was 59% (95% CI 51-67), stage II and a good response 91% (95% CI 85-97), stage IV and a poor response 8% (95% CI 0-19), and grade IV and a good response 43% (95% CI 62-79). There was no significant difference between survival for stage II disease with a poor response and stage IV disease with a good response ($p=0.72$). Age was not an independent predictor of survival at 5 years between stage II and stage IV disease.

Conclusion: Whilst the TNM staging system allows comparison between cases of Ewing's sarcoma, it is less predictive of survival than response to chemotherapy. Efforts should be focused on tools to assess the non-histological response to chemotherapy as this appears to be more predictive of survival than TNM staging.