Material and Methods: Using the National Cancer Data Base, we identified stage II seminoma patients treated with orchiectomy and either RT or MACT diagnosed from 1998–2012. Separately for stage IIA and IIB, factors affecting treatment modality (RT vs. MACT) were studied using a parsimonious multivariable logistic regression model. Propensity scores for treatment decision were incorporated into a multivariable Cox regression analysis of overall survival.

Results: Analysis included 2,437 patients (IIA=960, IIB=812, IIC=665). Median follow-up was 65 months (IQ range 34–106). Rates of RT utilization by stage were: IIA=78.1%, IIB=54.4%, IIC=4.2%. Rates of MACT utilization by stage were: IIA=21.9%, IIB=45.6%, IIC=95.8%. Median RT dose was: IIA=30.9 Gy (IQR 25.5–35.5) and IIB=35.5 Gy (IQR 31.1–36.0). For both IIA and IIB patients, later year of diagnosis, treatment at an academic facility, and pathologic assessment of lymph node(s) were associated with increased use of MACT vs. RT. Also predictive for preferential use of MACT were Charlson-Deyo comorbidity score of 1+ and non-private insurance for IIA patients, and T stage of 2+ for IIB patients. Unadjusted 5-year survival by stage was: IIA=97.1% (95% confidence interval [CI] 96.1–98.1), IIB=93.9% (95% CI 92.1–95.7), IIC=92.6% (95% CI 90.6–94.6), log-rank p=0.006. Factors predictive of improved survival on multivariable analysis included age<40, private insurance, and comorbidity score of zero. For IIA patients, overall survival was improved with RT compared to MACT with a 5-year survival of 99.0% (95% CI 98.2–99.8) vs. 93.0% (95% CI 89.0–97.0). This advantage persisted on multivariable analysis with a HR of 0.22 (95% CI 0.08–0.64, p=0.005) and propensity adjusted HR of 0.28 (95% CI 0.09–0.86, p=0.027). For IIB patients, 5-year survival was 95.2% (95% CI 92.8–97.6) for RT and 92.4% (95% CI 89.2–95.6) for MACT (log-rank p=0.041). This was not statistically significant on multivariable analysis with a HR of 0.74 (95% CI 0.32–1.70, p=0.475) and propensity adjusted HR of 0.77 (95% CI 0.33–1.80, p=0.549). An unadjusted Kaplan-Meier plot by stage and treatment is given in Figure 1.

Conclusion: In the largest cohort of stage II seminoma patients evaluated to date, we have identified numerous factors predictive for treatment selection and overall survival. We have shown a survival advantage for stage IIA patients treated with RT compared to MACT, while no such survival advantage was seen for stage IIB patients.

OC-0540
IOERT after gross total resection combined with EBRT in extremity sarcoma: a pooled analysis
F. Roeder1,2, A. De Paoli1, I. Alldinger1, G. Bertola1, G. Boz1, J. Garcia-Sabrido1, M. Uhl1, A. Alvarez3, B. Lehner1, F. Calvo1, R. Krempien1
1German Cancer Research Center DKFZ, Molecular Radiation Oncology, Heidelberg, Germany
2University Hospital of Munich LMU, Radiation Oncology, Munich, Germany
3National Cancer Institute, Radiation Oncology, Aviano, Italy
4University of Heidelberg, Surgery, Heidelberg, Germany
5University Hospital Gregorio Maranon, Surgery, Madrid, Spain
6University of Heidelberg, Radiation Oncology, Heidelberg, Germany
7University Hospital Gregorio Maranon, Radiation Oncology, Madrid, Spain
8University of Heidelberg, Orthopedics, Heidelberg, Germany
9HeliOS Clinic, Radiation Oncology, Berlin, Germany

Purpose or Objective: In 2009 we reported promising first results of a European pooled analysis which evaluated the use of intraoperative radiation therapy (IORT) in the treatment of soft tissue sarcomas. However, comparison of these results with non-IORT series seemed difficult, mainly because of the inclusion of grossly incomplete resected lesions, patients treated without additional external beam radiation therapy (EBRT) and comparatively short follow-up. Therefore we reanalyzed our data limited to the patients who received IOERT preceeded or followed by EBRT after gross total resection with extended follow-up.

Material and Methods: Three European expert centers participated in the current analysis. Patients with gross incomplete resection, missing documentation of EBRT or primary lesions outside the extremities were excluded, leaving 259 patients for analysis. Median age was 55 years and median tumor size 8 cm. 80% of the patients presented in primary situation with 81% of the tumors located in the lower limb. Stage at presentation was I:9%, II:47%, III:39%, IV:5%. Most patients showed high grade lesions (FNCLCC grade 1:9%, 2:34%, 3:58%, predominantly liposarcoma (31%) and MFH (27%). IOERT was applied to the tumor bed with a median electron energy of 8 MeV. IORT was preceded (17%) or followed (83%) by EBRT with a median dose of 45 Gy in all patients. 37% of the patients received additional chemotherapy.

Results: Median follow up was 63 months. Surgery resulted in free margins (R0) in 71% while 29% suffered from microscopic positive margins (R1). We observed 27 local failures, transferring into a 5-year local control rate of 86%. Univariate analysis revealed primary vs recurrent situation and resection margin as significant factors for local control but only resection margin (5-year LC rate 94% vs 70%, HR 3.8) remained significant in multivariate analysis. Distant failure was found in 70 patients, resulting in a 5-year distant control rate of 69%. Factors with significant impact on distant control in univariate analysis were histology, grading, resection margin and stage IV prior/at IOERT, but only grading and stage IV remained significant in multivariate analysis. Actuarial 5-year rates of FFTF and OS were 61% and 78%, respectively. Significant factors for overall survival were only grading and stage IV prior/at IOERT (uni- and multivariate). Secondary amputations were needed in 14 patients (5%) resulting in a final limb-preservation rate of 95%. Good functional outcome was achieved in 81%.

Conclusion: Combination of IOERT and EBRT after limb sparing surgery resulted in encouraging local control and overall survival with excellent rates of preserved limb function in this unfavourable patient group. Our analysis identified resection margin as most important factor for local control while overall survival was mainly influenced by grading and stage IV prior/at IOERT.

OC-0541
Long-term results of the AIEOP MH-89 protocol for pediatric Hodgkin lymphoma