

**FC-039****Local control in non-metastatic Ewing sarcoma**

T. Frisoni¹, **S. Ferrari**¹, L. Ronchi², K. Sundby Hall³, E. Staals¹, S. Cammelli⁴, M. Eriksson⁵, O. Monge³, P. Picci¹, D. Donati¹

¹ *Istituto Ortopedico Rizzoli, Bologna, Italy*

² *University Hospital, Bologna, Italy*

³ *Norwegian Radium Hospital, Oslo, Norway*

⁴ *Radiotherapy Department, University Hospital, Bologna, Italy*

⁵ *Medical Oncology Department, Lund, Sweden*

Poor response to chemotherapy and inadequate surgical margins are negative predictive factors for local control and survival in patients with Ewing sarcoma. The role of postoperative radiotherapy in this subset of patients was retrospectively evaluated.

Methods: Patients enrolled in ISG/SSG-3 protocol and who received definitive local treatment were included. Induction chemotherapy with vincristin, doxorubicin, cyclophosphamide, ifosfamide, actinomycin, etoposide was followed by high dose busulfan and melphalan and stem cell support in patients with poor response (PR). Patients with good response (GR) received the same drugs in the maintenance phase. Surgery (S) was the treatment of choice whenever possible. Radiotherapy (RT) (42-54 Gy) was given only in case of inadequate surgical margins or based on surgical judgment. RT (54 Gy) only was employed when surgery was not possible.

Results: Of the 300 patients enrolled, 27 were excluded (early surgery, surgery at the end of the treatment, early progression) and 273 patients were suitable for analysis. Median age was 15 years (3-40). 56% of tumors were localised at the extremities, 27% central and 17% in the pelvis/sacrum. 221 (81%) patients underwent surgical treatment.

Surgical margins, according to Enneking, were adequate in 168 (76%) inadequate in 40 (18%) N.A in 13 patients. Poor responders 108 (49%), Good Responders 110 (50%) N.A in 3. Overall 62 patients received post operative RT.

Local recurrence (LR) developed in 24 (9%) patients. Distant metastases occurred in 51 cases. The median time to LR was 15.2 months (6-47). With a median follow up of 53 months (8-118) 5-year probability of LR-free survival (5y-LRFS) was 90 %; 91% for patients who received only S, 93% in case of S+RT and 85% with RT only ($p < 0.2$).

Surgical margins did not influence local control (5y-LRFS: inadequate: 90%; adequate: 91%, $p = 0.9$) nor did the histologic response (5y-LRFS: GR 92%, PR 92%, $p = 0.8$).

Conclusion: Surgery is the treatment of choice for localised ES. An inadequate surgical margin can be rescued by the use of RT. In case of adequate surgical margins, the addition of adjuvant radiotherapy in patients with poor pathologic response does not improve the local control rate.