Early results with pre-operative radiotherapy for central Ewing’s sarcoma

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Introduction and objectives
Patients with Ewing’s sarcoma require multimodal therapy with systemic chemotherapy and local control. Surgery and adjuvant radiotherapy has become the preferred method of local control, although radiotherapy alone is an acceptable alternative1. Central Ewing’s sarcomas have a worse prognosis due to later presentation, larger size, increased incidence of metastasis at diagnosis and anatomical limitations of local control compared to limb Ewing’s2. We aimed to review the early oncological results of preoperative radiotherapy for central Ewing’s sarcoma at our institution.

Patients and Methods
The records of all 46 sequential central Ewing’s sarcomas who received surgery between 2000 and 2015 were reviewed (36 pelvic, 6 spine, 4 thoracic). All patients received neo-adjuvant and adjuvant chemotherapy and underwent pre-operative staging according to international guidelines. Radiation was used pre-operatively in 12 patients since 2012; the remaining 34 patients underwent post-operative radiotherapy from 2000 to 2012. Pre-and postoperative radiation doses were in accordance with Euro-ewing 99 and 2012 protocols. We identified overall survival, time to local recurrence and metastasis and post-operative wound complications.

Results
The mean ages were 20 and 18 years in the pre and post-operative groups and median follow-up was 1.4 years and 2.7 years respectively. Good necrosis results (>90% necrosis) were observed in 11/12 pre-op patients and 19/34 post-op patients. There were 15 deaths in the post-op group, with a 5-year estimated overall survival of 55%, and 9 local recurrences. There were no deaths or local recurrences pre-op group (chi-squared test, p=0.04 and p=0.05 respectively). There was no statistical difference in time to metastasis between the two groups (p=0.09). Wound complications were observed in 6/34 of the post-op group and 3/12 of the pre-op group.

Conclusions
These early results suggest that pre-operative radiotherapy may have improved early local control and survival advantages compared to post-operative radiotherapy as part of multimodal treatment of central Ewing’s sarcomas, without detrimental wound complication rates.


Keywords : Ewing’s sarcoma, pelvis, radiotherapy
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