cases) or a prostheses (one case) was then performed. Resection was considered wide in two cases and marginal in one. All margins of resection were pathologically free of tumor. Chemotherapy was continued in two cases for an additional 2 and 7 months.

Results: All patients are alive with no evidence of disease 1.2, 3.5 and 4 years after diagnosis. One patient suffered allograft fracture and needed reconstruction 11 months after initial surgery. All patients had excellent functional outcome.

Conclusions: Conservative resection alone may be sufficient for local control in selected patients with extremity Ewing's sarcoma. This approach may reduce treatment related morbidity and deserves further study.

1197 ORAL

MULTIDISCIPLINARY TREATMENT OF EWING'S SARCOMA: RESULTS OF THE CESS 81 AND 86 STUDIES

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Combined modality treatment has improved the prognosis for Ewing's sarcoma. The impact of surgery ± radiotherapy on prognosis was evaluated in 272 protocol patients (pts) treated according to the CESS 81 and 86 studies, 1981–1991. The estimated relapse-free survival at 13 years is 57%. 76 pts (28%) had radiotherapy and 193 (71%) surgery ± radiotherapy. The incidence of local or local/systemic recurrences was 14% for the whole group, 8% with surgery ± radiotherapy and 29% with radiotherapy. The incidence of systemic relapse was 24% for the whole group, 28% with surgery ± radiotherapy, and 14% with radiotherapy. In pts with small tumors (<100 ml), local recurrences were 5% with surgery and 28% with radiotherapy, in pts with large tumors 8% after surgery and 32% after radiotherapy. Systemic recurrences with small tumors were 24% after surgery and 0% after radiation, with large tumors 30% after surgery and 21% after radiotherapy. When the resection was radical or wide the local recurrence rate was 5%, compared to 14% with marginal or intralesional resections. It is concluded that surgery adds to the safety of local control, but seems to be associated with more systemic disease.

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1198 ORAL

TREATMENT OF LOCALIZED EWING'S SARCOMA IN YOUNG ADULTS. A STUDY OF THE FRENCH SOCIETY OF PEDIATRIC ONCOLOGY

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From January 1988 to January 1992, 141 patients entered the EW88 protocol based on the chemotherapy (CT) used in St. Jude Hospital since 1978 (*JCO* 7, 208–213, 1989). Among them, 44 were young adults (15 to 35 yrs, median 20 yrs).

Induction CT consisted in Cytoxan 150 mg/m^2 p.o. × 7 days followed by Adriamycin 35 mg/m^2 IV on day 8 for 5 courses beginning days 1, 15, 29, 50 and 71. Surgery was recommended whenever possible. Radiation was based upon the quality of surgery and the histological response to CT. Maintenance CT was based on vincristine + actinomycin and cytoxan + adriamycin. Total duration of therapy was 10 months. In March 1995, median follow-up of the cohort was 64 months (38–87 m). Outcome was similar in adults and children.

	97 pts < 15 yrs	44 pts ⩾ 15 yrs	
no. pts without initial control	0	4	
no. pts with local relapse	21	8	
no. pts with isolated metastases	17	12	
5 year DFS	58% (±10)	52% (±15)	N.S.
5 year Survival	64% (±10)	65% (±15)	N.S.

1199 ORAL

ADULT EWING'S SARCOMA—THE ROYAL MARSDEN EXPERIENCE

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We report a series of 70 consecutive patients (pts) treated on the Adult Sarcoma Unit since 1980 for the Ewing's group of tumours. All pts had a diagnosis of Ewing's sarcoma, Askin's tumour or PNET confirmed after local histology review. Characteristics: median age 24 yrs (14–65); 46 M, 24 F; 12 upper limb, 21 lower limb, 3 head and neck, 11 chest wall, 11 pelvis and 7 other primary sites. 5 pts presented with disseminated disease and no definite primary. Chemotherapy was predominantly IVAD3 (30 cases), VAC in 7 cases, and a dose intensive regimen of ifosfamide, etoposide and cyclophosphamide + G-CSF in 5 cases. Surgery and radiotherapy were used for local control. 5 pts had high dose chemotherapy with ABMT or PBSC rescue. 15 pts, were lost to follow up after a median of 7 months. Of the remainder 28 (51%) have died, 4 (7%) are alive with residual disease, 3 (5%) are on treatment for relapsed disease and 6 (11%) have yet to complete induction therapy. 14 patients (25%) are alive and disease free with a median follow-up of 33 months (10–102 mths). The poor survival in this group is explained by tumour bulk >100 ml in the majority of pts. There is clearly a need for further studies to determine the role of dose intensification and high dose chemotherapy with PBSC rescue, which are currently underway.

1200 ORAL

ADULTS WITH EWING'S SARCOMA: A RETROSPECTIVE STUDY OF 146 CASES

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From 1982 to 1992, 146 adults with Ewing's sarcoma, have been treated for their first tumoral event in 3 french cancer centres. There were 91 males and 56 females. The median age was 20.2 (16–55) years. As regards site, 62 pts (42.5%) had extremity lesions, 57 pts (39%) had axial tumor (vertebra 8%, pelvic 31%), 13 pts (9%) had rib primary lesion, and 14 pts (9.5%) had extraskeletal disease. 41 pts (28%) were metastatic at diagnosis. Chemotherapy was the first treatment in 90% of the no metastatic patients and 88% of the metastatic patients were treated with curative intent. All patients could receive more than 90% of the previous dose of chemotherapy, although 53 pts received a regimen initially designed also for pediatric pts. In 66 pts (45%) surgery was done as part of local treatment, of those 45 pts were given post operative radiotherapy. Radiotherapy was performed in 119 pts with a median dose of 45 Gy; 23% of the patients received less than 50 Gy. With a median follow-up of 5 years, overall survival (OS), metastatic free survival (MFS) and local recurrence free survival (LRFS) were and for the no metastatic and the metastatic pts: 50.3%/7% ($P < 0.0001$); 47.8%/5% ($P < 0.0001$); 66.3%/46.3% ($P < 0.0001$) respectively. The analysis for prognostic variables in 105 M-pts is presented below:

	OS	DFS	MFS	LRFS
Histologic response	36.5/85.5	30.4/43.4	36.2/52.8	
0, 1, 2/3, 4	$p = 0.003$	$p = 0.02$	$p = 0.03$	
Sex F/M	44.6/65.3	37.5/44.8	40.4/53.7	
	$p = 0.04$			
Sites extremity	61.3	47.4	47.97	74.3
pelvic	38.2	28.3	33.1	52.6
vertebra	0	0	40	0
central	26.2	17.4	39.9	56.4
chest	85.7	51.4	68.6	80
extraskeletal	88.9	62.2	62.2	89.9
	$p = 0.05$	$p = 0.02$	$p = 0.06$	
	$p < 0.001$	$p < 0.001$		

Prognostics factors correlated with a poor overall survival were female gender, axial tumor localization and poor histologic response to initial chemotherapy. In conclusion, from this series, natural history and evolution did not show out to be different for Ewing sarcoma occurring in children. Moreover pediatric chemotherapy protocols appeared to be correctly tolerated. As in pediatric pts, novel approached had to be designed for M+ and poor responders to initial chemotherapy.

1201 ORAL

CONSOLIDATION WITH BUSULFAN AND MELPHALAN FOLLOWED BY HEMATOPOIETIC STEM-CELL TRANSPLANTATION (SCT) IN CHILDREN WITH POOR PROGNOSIS EWING'S SARCOMA

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From July 1989 to December 1995, 16 children with metastatic Ewing's sarcoma or PNET were treated with high-dose chemotherapy (HDC) consisting of Busulfan (600 mg/m^2) and Melphalan (140 mg/m^2) followed by autologous SCT. Eight/16 were metastatic at diagnosis: 6/8 were consolidated in first intention and 2 after treatment of a metastatic