of lethal tumor recurrence. Secondly, we expect rather radiological visible than clinical relevant side effects due to the very small PTV definition of our concept.

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Prospective cooperative multicenter study SIOP/GPOH "low grade glioma" in childhood (1996): results after Radiotherapy (German cohort)

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Background: The prospective trial HIT SIOP LGG 1996 was the first in Europe offering a uniform concept for observation and treatment of children with low grade glioma (LGG). We evaluated the German cohort of patients treated with Radiotherapy (including patients from Switzerland, Austria and Belgium).
Methods: Stratified by age, children with LGG started non-surgical therapy after tumour resection or clinical diagnosis only when the tumour was progressive or clinically symptomatic: Chemotherapy (Chx) was performed, if age was under 5 years, or Radiotherapy (RT), if children were older. Both Brachytherapy (BT) and percutaneous fractionated RT were permitted. We evaluated data for survival (Kaplan-Meier-Analysis), RT technicque and acute toxicity. 144 Pat. received RT (RT-group) as first non-surgical treatment, 33 children after failure of initial Chx (Chx-RT-group).
Results: In the RT-group 91/144 patients (63%) had percutaneous RT, while 53/144 patients (37%) had BT with Jod-125-seeds. The corresponding numbers in the Chx-RT-group were 32 and 1, resp. The median follow up time from beginning of RT was 35 months in the RT-group and 32 months in the Chx-RT-group (range 0.3–94 and 1–88, resp.). There was no relevant difference in progression free survival (PFS) after 3 years in both groups (RT-group 70%, Chx-RT-group 68%). Radiotherapeutic technique didn't show a relevant influence (3-year-PFS percutaneous RT 68.5%, BT 73.5%, p = 0.29). By defining age groups of children <1 year, 1–4 years, 5–10 years and >10 years at RT, a bad outcome for the very young children (<1 year, 3-y.-PFS 33%), a good outcome for the children aged 1–4 years (3-y.-PFS 89%) and a further decrease with age (5–10 y. 71%, >10y. 62%, p = 0.027) was found. There were only few cases of 3–4-acute toxicity: 2 × dermatitis grade 3, 1 × leukopenia 3, 1 × headache 3, 1 × local catheter infection, 1 × suspected radiation induced encephalitis, 1 tumourradionecrosis, 1 × local infection of the BT katheter and some other temporary problems like dysacusis and visual impairment (together n = 6).
Conclusions: RT for LGG in children is effective and good tolerable, even after failure of Chx. Prospective studies like the subsequent SIOP GPOH LGG RT 2004 trial (active in Germany since 01.04.2004) are necessary in order to evaluate the value of the RT within a comprehensive treatment concept, esp. regarding the role of modern irradiation technicques and the incidence of relevant late toxicities.

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Treatment results of 165 pediatric patients with non-metastatic nasopharyngeal carcinoma: a rare cancer network study

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Purpose: This Rare Cancer Network study was performed retrospectively in pediatric (age ⩽17 years) NPC patients to evaluate the role of chemotherapy, the optimal dose of radiotherapy, and the differences in outcomes in regard to the possible prognostic factors.
Material and methods: The study included 165 (109 male and 56 female) pediatric patients with the diagnosis of non-metastatic NPC treated between 1978 and 2003 from 16 centers collaborating in the Rare Cancer Network. Only patients evaluated either with CT or/and MRI for loco-regional tumor were included in the study and were staged according to AJCC 1997 classification. The median age is 14 years old (Range 7–17 years). Histopathological classification revealed 23 (13.9%) patients with WHO II and 142 (86.1%) patients with WHO III. Cranial nerve palsy was present at diagnosis in 12 (7.2%) patients. There were 3 (1.8%) patient with stage I, 1 (0.6%) with IIa, 10 (6.1%) with IIb, 60 (36.4%) with III, 44 (26.7%) with IVA, and 47 (29%) with IVB. All patients were treated with fractionated external beam radiotherapy (EBRT) to a median dose of 66 Gy (Range:49.8–74.4 Gy). Chemotherapy schedule was non-cisplatin based mono therapy in 1 (0.8%), cisplatin based mono therapy in 10 (6.9%), non-cisplatin based multi regimen in 29 (20.1%) and cisplatin based multi regimen in 104 (72.2%) patients. The median follow-up time for all patients was 48 months (Range, 5–249 months).
Results: The actuarial overall 5-year survival (OS) was 77.4%, whereas the actuarial 5-year local relapse free survival (LRFS), loco-regional relapse free survival (LRRFS), distant metastasis-free survival (DMFS) and disease-free survival (DFS) rates were 87.8%, 81.9%, 80.5% and 68.8%, respectively. In univariate analysis, statistically significant unfavourable factors were male gender for DMFS (p = 0.01), T3&T4 disease for LRFS (p = 0.01), presence of cranial nerve palsy at diagnosis for LRFS (p = 0.02) and LRRFS (P = 0.01), stage IV for DFS (p = 0.02), N3 disease for DFS (p = 0.004) and OS (p = 0.03), total nasopharyngeal EBRT dose of less than 66 Gy for LRRFS (p = 0.01) and patients treated with radiotherapy alone for LRFS (p = 0.001) and LRRFS (p = 0.02). In multivariate analysis, statistically significant unfavourable factors were age older than 14 years for LRC (p = 0.04, RR:2.3); male gender for DMFS (p = 0.03, RR:2.7); T3, T4 disease for LRFS (p = 0.01, RR:6.2); N3 disease for DFS (p = 0.002, RR:2.4) and OS (p = 0.002, RR:2.4); total nasopharyngeal EBRT dose of less than 66 Gy for LRFS (p = 0.02, RR:3) and LRRFS (p = 0.002, RR:3.8); and patients treated with radiotherapy alone for LRFS (p = 0.0001, RR:5.9), LRRFS (p = 0.007, RR:3.4) and DFS (p = 0.02, RR:2.2).
Conclusion: We have defined favourable prognostic factors in our pediatric NPC cohort as younger age (age < 14), female gender, early T1, T2 and N0–2 status, total nasopharyngeal EBRT dose ⩾66 Gy, and the treatment schedule incorporating chemotherapy with radiotherapy. This data suggests that high dose RT combined with multi-agent chemotherapy is effective in achieving satisfactory results.

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Results of Spanish Cooperative Protocol SEOP-95 for non metastatic osteosarcoma of the limbs in children

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Background: To improve the survival and the rate of limb salvage procedures the Spanish Society of Pediatric Oncology (SEOP) started in 1995 the SEOP-95 protocol. From 1995 to 2000, 100 patients with non metastatic osteosarcoma of the limbs were enroled.
Material and methods: The protocol consisted of preoperative chemotherapy with Ifosfamide, Doxorubicin, Cisplatin and high dose Methotrexate for 14 weeks. After surgery, patients received chemotherapy with the same drugs for 25 weeks.
Results: Median age was 12 years (range 4y-20y) and there were 54 males and 46 females. Femur (50%), tibia (32%) and humerus (11%) were most common primary sites. Compliance to pre and post-chemotherapy was >90%. Limb salvage procedures were performed in 85 patients (85%) and mutilant in 15. Good histologic response (>90% necrosis) was observed in 67 cases. There were 7 local relapses (7%) and 4 treatment-related deaths (1 venoclusive disease and 3 sepsis). One patient developed a second neoplasia (AML). Three patients suffered moderate hipoacusia. No renal or cardiac sequelae were observed. With a follow up of 48 to 124 months (median 89 months) the actuarial 5 year event-free-survival is 67%. Survival for good histologic response patients was 73% versus 52% for poor responders (P = 0.011). Survival for patients with tumor volume <100ml was 80% versus 68% for the rest (P = 0.12).
Conclusions: This protocol led to good oncologic and orthopedic results, with a significant treatment –related mortality. Our current protocol SEOP-2001 has shortened the post-op chemotherapy, in order to reduce treatment-related toxicity.