presented at the meeting) are awaited in order to make a decision about further trials with this regimen.

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Exclusive high-dose-rate brachytherapy for oral cavity carcinomas

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Purpose: The important role of brachytherapy in the treatment of oral cavity tumors is well established. However, there is still a lot of controversy about the use of high-dose-rate brachytherapy (HDRBT) for head and neck carcinomas. In this prospective study, we evaluated the efficacy and safety of exclusive HDRBT in patients with oral cavity carcinoma.

Methods and Materials: Were eligible patients with a biopsy proven grade 1 or 2 squamous cell carcinoma or adenocarcinoma of oral cavity stage Tis, T1 or T2, N0, M0. HDR Ir-192 afterloading system was used delivering dose of 40.2 Gy in 12 fractions over 98 hours. The implants technique and dosimetry followed the rules of Paris system with optimisation allowed.

Results: 17 patients were included, 6 of which presented with a lower lip tumor, 4 with carcinoma of the floor of the mouth, 3 with oral tongue tumor, 2 with cancer of the buccal mucosa, one with lower alveolar ridge tumor and one with soft palate tumor. The tumor mean diameter was 2.37 cm. Eleven were T1, 5 were T2 and 1 Tis. All cases were proven by biopsy and there were 16 squamous cell carcinomas and one adenocarcinoma. Of the 16 invasive carcinomas, 12 were grade 1 and 4 were grade 2. In only 4 patients was HDRBT used for a prior treatment failure. For all the others, HDRBT was the first and exclusive treatment.

At the last follow-up, 11 patients were alive without evidence of disease and no toxicity, 1 patient was alive with toxicity, 2 patients were alive but developed a second cancer and 3 patients were deceased (of whom two from atherosclerotic disease). With a median follow-up of 30 months, late toxicity was found in three patients (17.6%): one patient experiencing soft tissue necrosis, one patient suffering a bone necrosis and one other patient neuropathic pain. The soft tissue necrosis was successfully treated with hyperbaric oxygenotherapy.

The local control rate and locoregional control rate are 88.2% and 76.5% respectively. The disease-free survival, the overall survival and the disease-specific survival are respectively 76.5%, 82.4% and 94.1% at 2 years.

Conclusion: In this series, exclusive HDRBT for oral cavity cancers bears no higher risk of toxicity when compared to than LDRBT series. So far, control rate and survival also seem similar.

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Regionally advanced nasopharyngeal carcinoma (NPC): patterns of failure after sequential chemotherapy (CT) and radiotherapy (RT)

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Purpose: To evaluate clinical outcome and pattern of failure in 61 patients (pts) with regionally advanced NPC treated with sequential CT and RT.

Methods: In 1990 a Phase II trial was designed to evaluate feasibility and activity of a regimen including sequential CT and RT. Inclusion criteria: pathological confirmation of NPC; stage (UICC 1987) T-any, N2-3, M0; ECOG PS 0-1. Treatment: 3 cycles of induction CT with epirubicin 70 mg/m2 d1 and cisplatin 100 mg/m2 d1 (recycle 21 d) followed by radiotherapy to nasopharynx (64-70 Gy) and neck (50-70 Gy), with conventional fractionation (1,8-2 Gy/fr, 5 frs/week).

Results: Sixty-one patients were accrued from 2/1990 to 9/1996. Stage according to UICC 1997 was IIb in 13%, III in 33% and IV in 54% of pts. Sex: male 75%; age: median 44 y (range 17-72 y); histology: WHO type 1-2 (11%), WHO type 3 (89%). Sixty pts received 3 cycles of CT, 1 pt 2 cycles due to no response. Toxicity was moderate with minor dose reductions in 4 pts. RT was given to 60 pts. (1 pt. had distant M+ after CT): total dose ranged from 60 to 71.6 Gy (median 66.9 Gy), total duration 40-65 d (median 51 d). Acute toxicity was acceptable with a split prescribed in 26% pts. With a median follow-up of 5.3 y (range 3.6-10.2 y) 44 failures have been observed in 29 pts. Initial failure was local in 10%, regional in 18%, local and regional in 1.6% and distant in 18% of pts. Seven pts were dissected for a neck nodal failure, and 4 were re-irradiated to the primary site for a local failure. At 5 years local control was 83%, regional control 74% and freedom from M+ 70%; overall survival was 62% and disease-free survival (DFS) 52%. Frequently reported late effects included xerostomia in the majority of patients and significant hearing loss in 18 pts.

Conclusions: In our series, freedom from distant metastases and overall survival were similar to values reported recently with more aggressive regimens of combined modality treatment; regional control and DFS were relatively worse probably due to inclusion criteria (N2-N3).

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Analysis of mandibular dose distribution in radiotherapy (RT) for oropharyngeal cancer

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Purpose: Relationship between RT dose and the risk of osteoradionecrosis is well known. However, the dose to the mandible is not routinely assessed in RT for head and neck cancer. Our aim was to analyze the mandibular dose distribution in patients (pts) administered RT for oropharyngeal cancer.

Methods: We examined RT plans in 18 pts treated with bifractionated RT for stage II-IV M0 oropharyngeal cancer. In 17 pts RT dose prescribed in the ICRU point was 74.4 Gy/62 fractions (1.2 Gy bid, 6 h interfraction interval) and 1 pt received 75.6 Gy. The whole dose to the mandibular region was delivered with 6 MV photons. The mandible was contoured manually on CT scans and the point doses at the both mandibular condyles, ascending ramus, mental symphysis, molar and retromolar regions were assessed. Cumulative dose-volume histograms (DVH) were evaluated.

Results: The highest doses were observed in the retromolar regions. The mean percentage doses at the right and left retromolar regions were 101.3% ± 3.8% (range, 90.2-109.1%) and 101.7% ± 2.5% (range, 95.2-105.8%), respectively. Lower doses were seen in ascending ramus (mean right and left ramus: 97.3% ± 8.5% and 97.8% ± 7.6%, respectively), the molar regions (mean right and left molar region: 86.0% ± 13.5% and 88.1% ± 12.9%, respectively), and at the mandibular condyles (mean right and left condyle 72.6% ± 18% and 77.0% ± 16.5%, respectively). The mandible volume ranged from 60.1 cm3 to 110.1 cm3 (mean 82.3 cm3). In all pts the maximum dose absorbed in the mandible was higher then the dose prescribed in the ICRU point and the mean maximum dose absorbed in the mandible was 105.7% ± 2.1% (range 102.4-110.6%). The percentage of mandibular volume receiving a dose higher than prescribed was 28.6% ± 14.9% (range 10.2-58.1%). The DVH area, maximum mandibular doses and retromolar doses did not appear to statistically depend on use of wedge or mandibular volume.

Conclusions: RT for oropharyngeal cancer is associated with high doses to the retromolar mandibular regions (the dose can be higher then prescribed in the ICRU point), ascending ramus and molar regions. Lower doses are absorbed at the condyles and mental symphysis. The single dose point (for example, the ICRU reference point) could be not representative for the mandibular dose.

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Low-dose paclitaxel radiosensitization in locally advanced head and neck cancers

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Introduction: Combined modality treatment with chemotherapy and radiotherapy in locally advanced head and neck cancers is an effective and often the only treatment with a chance of cure. These schedules are usually very intensive and therefore hardly be executed in patients with impaired general condition. An alternative is to use chemotherapeutic agents in low dose as radiosensitizers. In this study we examined the radiosensitizing effect of low dose paclitaxel (Taxol, Bristol-Myers Squibb) in locally advanced head and neck cancer.