Median follow-up in living patients was 38 months. One patient was lost from follow-up after 24 months. One patient treated with radiochemotherapy for a cT4a cN2b M0 hypopharyngeal primary tumor was diagnosed with locoregional recurrence at 6 months of follow-up and deceased 3 weeks later. Due to renal insufficiency, he only received one cycle of cisplatin 100 mg/m² at day 1 of C-ART-DPBN. There were no other locoregional or distant recurrences. A single other patient died due to a second primary lung tumor at 30 months after C-ART-DPBN. Actuarial LRC was 100%, 90%, 90% and 90% after 6, 12, 24 and 36 months, respectively. Actuarial OS was 100%, 90%, 90% and 79% at 6, 12, 24 and 36 months, respectively.

All grade 0-3 late xerostomia, dysphagia and mucosal integrity is shown in Figure 1. Grade 4 trismus was seen in 1 patient at month 6, and reduced to grade 3 thereafter. One patient had a persistent skin ulcer up to 1 year of follow-up (scored as grade 4 skin necrosis) resulting from complete response of an involved neck node invading the skin; thereafter the wound healed spontaneously. There was no other grade 4 and no grade 5 late toxicity.

Conclusions: Continuous adaptive radiotherapy using DPBN has been shown to be feasible and resulted in excellent locoregional control, survival and late toxicity. A multicentre prospective randomised trial is currently recruiting patients and will compare C-ART-DPBN to standard non-adaptive radiotherapy for head and neck cancer.

EP-1150 Accurate 3D mandibular VMAT dose prediction from 18-FDG PET derived auto contours: streamlined ORN prophylaxis

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Purpose/Objective: Osteoradionecrosis (ORN) of the mandible is a feared late complication of high dose radiotherapy (RT) for head and neck cancer. ORN is often precipitated by extraction of carious teeth from a heavily irradiated mandible. The threshold dose, below which ORN does not occur is controversial, but generally believed to be above 60Gy in 2Gy per fraction. Many centres extract teeth prior to RT commencement to prevent ORN. Dental assessment, extractions and subsequent mandibular healing often delays RT simulation and start. This delay may affect tumour control. To minimise delay, efforts should be made to quickly and accurately identify areas of mandible at risk and focus assessment on the associated teeth, or completely bypass dental assessment. The aim of this study is to validate the accuracy of a rapid and objective 3D model for mandibular dose estimation that can be generated prior to patient simulation for RT.

Materials and Methods: Ten consecutive patients treated definitively for mucosal squamous cell carcinoma (SCC) of the upper aerodigestive tract, with disease within 15mm of the mandible, were identified. All patients were treated over 35 fractions to a maximum dose of 70Gy and had bilateral nodal irradiation to 56Gy using volumetric modulated arc therapy (VMAT). A PTV of 63Gy (biologically 60Gy in 30 fractions) was planned for each patient, consisting of a 10mm isotropic margin from GTV to CTV, and a further 5mm to PTV. Pinnacle 9.6, was used to generate the auto-contoured MANDIBLE and a 63Gy DOSE structure, from the delivered plan. This dataset was imported into MIM 6.0, along with the patient’s PET and corresponding CT scan in RT position. The ‘PET Edge’ tool was used to auto-contour all primary tumours and upper cervical lymph nodes. A 15mm isotropic expansion was applied to create 63Gy MIM. The PET/CT was fused to the RT planning CT by MIM 6.0. The volume of overlap from the actual 63Gy DOSE and MANDIBLE, and 63gy MIM and MANDIBLE were recorded and compared using the Dice similarity coefficient (DSC).

Results: All patients had stage IVA SCC. Nine patients had primaries of the oropharynx and one of the supraglottic larynx. Eight patients were male. The mean DSC of mandible between 63Gy DOSE and 63Gy MIM was 0.72. Sensitivity, specificity, positive and negative predictive values of the 63Gy MIM model were 0.64, 0.98, 0.86 and 0.95 respectively. The mean and median volume of mandible receiving ≥63Gy was 6.4cc and 5.3cc respectively.

Conclusions: Accurate dose prediction can be achieved using auto-contours from pre-therapy 18-FDG PET scans. Three-dimensional visual displays of high mandibular dose may be useful for oral health practitioners to decide whether to prophylactically extract teeth. The volume of mandible receiving more than 63Gy is low, and the negative predictive value of this model is high. This suggests that the need for extraction may be relatively uncommon in centres using modern RT techniques.

EP-1151 IMRT with simultaneous integrated boost and chemotherapy for locoregionally advanced nasopharyngeal carcinoma

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Purpose/Objective: To evaluate long-term outcome in locoregionally advanced nasopharyngeal carcinoma (NPC) treated with Intensity-Modulated Radiotherapy-Simultaneous Integrated Boost (IMRT-SIB) and concurrent chemoradiotherapy (CHRT) +/- neoadjuvant chemotherapy (CHT).

Materials and Methods: All patients (pts) were treated with IMRT-SIB (step and shoot technique) and +/- neoadjuvant CHT (cisplatin + 5-fluorouracile or docetaxel+cisplatin+ 5-fluorouracile every 21 days for 2 cycles) + concurrent CHRT (weekly cisplatin or cisplatin + 5-fluorouracile every 21 days). Computerized optimization was performed with fusion of MRI and/or PET with treatment planning CT images to accurately delineate the gross tumor volume (GTV), which included the primary disease and nodes greater than 1 cm in diameter or nodes with necrotic centers. The treated volumes and the dose delivered were as follows: Clinical Target Volume (CTV)
66-70 Gy: gross tumor volume + isotropic expansion of 5 mm; CTV 59.4-60 Gy: lymph node regions (LNR) at high risk; CTV 59.4-54 Gy: LNR at low risk. PTW were developed by adding to CTV an isotropic expansion of 5 mm. Patients with II stage NPC were treated with concurrent CHRT and patient with III/IVA/B stage were treated with neoadjuvant CHT followed by concurrent CHRT. Acute and late toxicities were graded according to Radiation Therapy Oncology Group/European Organisation for Research and Treatment of Cancer morbidity scoring criteria.

Results: We retrospectively analyzed 53 patients (pts) with pathologically diagnosed NPC, including 37 males and 16 females; mean age was 52.8 years (range 14-77 years). According to the AJCC 2010 staging system 8 pts had II stage, 30 pts III stage and 15 pts IVA/B stage. At a median follow-up of 26 months, 13 pts experienced local regional failure and distant metastasis occurred in 11 pts. Reirradiation +/- chemotherapy were used as salvage treatment in 6 pts, chemotherapy in 2 pts and 2 other pts received surgery (in 1 pt lymph node dissection and the other pulmonary metastasectomy). The 2 years actuarial loco-regional failure-free survival and disease free survival were 78.9 % and 78.4 %, respectively. No patients had treatment failure after 24 months.

Purpose/Objective: To evaluate the efficacy and toxicity of induction chemotherapy (IC) followed by radiochemotherapy (RTCT) versus concurrent radiochemotherapy for locoregionally advanced nasopharyngeal cancer (NPC).

Materials and Methods: Patients with locoregionally advanced NPC were treated with three cycles of induction chemotherapy (IC) with Taxotere (75 mg/m^2) plus cisplatin (75 mg/m^2), plus 5-Fluouracil (750 mg/m^2) followed by full doses of IMRT (70 Gy) concurrently with cisplatin 100 mg/m(2) every 21 days for three cycles (Group A) or to the same RTCT regimen alone (Group B). The outcomes of patients was evaluated in terms of overall survival (OS), local control (LC), and toxicity.

Results: From July 2007 until December 2013, 45 patients were analyzed. Among them, 23 patients received three cycles of IC and 22 patients were treated with concomitant radiochemotherapy alone. With a median follow-up of 63 months for the entire group, (range 3-146), 1-ys, 3-ys and 5-ys Overall Survival were 79%, 58% and 52% for patients treated with induction chemotherapy, and 95%, 89% and 81% for RTCT alone, respectively (p=0.04). One-year, 3-ys and 5-ys Disease Free-Survival were 64%, 41% and 19% for patients undergone to IC, 88%, 81% and 65% for patients receiving RTCT alone (p=0.0020). Patients undergone to radiochemotherapy alone had a significantly higher local control than patients treated with IC (3-ys LC: 97% vs 40%; p=0.0014). The stage affect the final multivariate model for OS (p=0.031), and DFS (p=0.0021) and LC (p=0.0086). Acute toxicity was similar in both groups.

Conclusions: Compared with the induction chemotherapy group, concurrent chemoradiotherapy alone could significantly improve prognosis in terms of overall survival, loco-regional failure-free survival, even if patients treated with neoadjuvant chemotherapy had a very locally advanced disease. However, distant metastatic events still remain a problem, and larger and multicenter randomized trials are required to assess whether IC followed by RTCT is superior to RTCT alone.

EP-1153
Nasopharyngeal carcinoma treated with intensity-modulated radiotherapy in a non-endemic area
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Purpose/Objective: Despite the numerous retrospective and prospective series about IMRT treatment of Nasopharyngeal Carcinoma (NPC) in the literature, there is not a clear consensus in dose schemes and target volume definitions. Furthermore, there are few studies about non-Asiatic populations, with small data on European countries. The aim of this study is to describe and analyze our results in treating all-stages NPC with IMRT-simultaneous integrated boost (SIB), in a non-endemic area.

Materials and Methods: We performed a retrospective review of 52 consecutive patients with NPC treated with curative intention with IMRT-SIB in our institution between...