⩾5 cc vs. 50%, p < 0.01). There was no difference between HPV(+) and HPV(−) with respect to the presence of multiple GTV-N (69% vs 72%, p = 0.82), involvement of level II (98% vs. 97%, p = 0.76) or retropharyngeal nodes (12% vs 16%, p = 0.50). Frequency of bilateral neck involvement was similar for all cases (35% vs. 39%, p = 0.57), however, HPV(+) OPC not extending to midline had less bilateral GTV-N (9% vs. 36%, p = 0.013). More LN had cystic appearance for HPV(+) OPCs (52% vs. 24%, p < 0.01). **Conclusions:** HPV(+) OPC rarely arises beyond tonsil or base of tongue and more frequently has gross nodal involvement compared to HPV(−) OPC. Involved nodes tend to be larger and more often (though not exclusively) cystic than HPV(−). The number, level and laterality of involved nodes are similar between the two groups with the exception of relatively rare bilateral involvement in HPV(+) OPC without primary tumour midline extension.

8558 POSTER

An Open, Multicenter Clinical Study of Cetuximab Combined With Intensity Modulated Radiotherapy Plus Concurrent Chemotherapy in Locally Advanced Nasopharyngeal Carcinoma

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Background: To evaluate the safety and efficacy of cetuximab combined with IMRT + concurrent cisplatin chemotherapy in patients with locoregionally advanced NPC in a Chinese multicenter clinical study.
Methods: Patients with primary stage III − IVb non-keratinizing NPC were enrolled. The planned dose of IMRT to gross tumour volume (GTV) was 66–75.9 Gy in 30−33 fractions. Cisplatin (80 mg/m^2, q3week (w)) and cetuximab (400 mg/m^2 one w before radiation, and then 250 mg/m^2/w) were given concurrently for 6−7 weeks. The response rate was evaluated according to RECIST 1.0, and adverse events (AEs) were graded according to CTCAE v3.0.
Results: From July 2008 to April 2009, 100 patients were enrolled. With a Medium follow-up time of 13.1 months, No patients withdrew from the study. With the exception of one patient who experienced a grade 3 acne-like skin rash which developed in the 4th cycle and which did not recover to grade 2 skin rash in two weeks. Actual median dose to GTV and positive cervical lymph nodes were 69.96 Gy and 68 Gy, respectively. Median dose of cisplatin was 133.17 mg/cycle. 99% of all included patients finished the planned treatment. No toxic deaths were observed during the treatment. AEs of this combined modality treatment mainly consisted of acneiform skin eruptions, dermatitis, mucositis, xerostomia, leucopenia and slight ALT elevations etc. Typical skin rash toxicity (grade 2/3) was observed in 64/100 patients (64%) mainly starting at the third week of cetuximab treatment. Only one patient had a mild infusion related reaction, which happened in the first week of cetuximab therapy. From the third week of radiotherapy, 58% and 90% of the patients began to suffer from grade 1 dermatitis and ⩾ grade 2 mucositis, respectively, while grade 4 mucositis (spontaneous bleeding) was observed in 2% of the patients. 40% of patients experienced ⩾ grade 2 xerostomia. Besides 2 cases of mucositis, no other grade 4 AEs were observed. Bone marrow suppression was mild, and only 8%, 4% and 5% patients had ⩾ grade 2 decreased ANC, Plt and Hb, respectively. Locoregional control rate at 3 months after the stop of chemoradiotherapy was 100% (n = 93). With a median follow-up of 330 days, no local recurrence occurred (both nasopharyngeal site and positive lymph nodes) in any patient. Within the follow-up period, distant metastasis occurred in 4 patients (4%), out of these, 3 cases were lung metastasis. 5 patients died during the follow-up period (5%), 2 patients from tumour progression, 1 hemorrhage in nasopharynx, 1 hemorrhage in abdomen and 1 non-tumour related death.
Conclusions: The combined treatment modality of IMRT + concurrent chemotherapy + cetuximab in loco-regionally advanced NPC was well tolerated, with a very encouraging loco-regional control rate and metastasis-free survival rate at 1 year. Further investigation of this combination in treatment in Loco-regional NPC is warranted.

8559 POSTER

Single Vocal Cord Irradiation − a Competitive Treatment Strategy in Early Glottic Cancer

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Introduction: The treatment of choice for early glottic cancer is still being debated. Although most groups agree that good local control (LC) can be obtained with both laser surgery or radiation therapy (RT), the treatment modality of choice ultimately relies on best functional outcome. In order to optimize the quality of voice, a novel 4D conformal technique for single vocal cord irradiation (SVCI) was designed.
Material and Methods: For reference purposes, the records of all patients with newly diagnosed squamous cell carcinoma of the vocal cord (164 T1a), treated between 2000 and 2008 in the Erasmus MC by RT only, were analyzed. All patients were irradiated to a total dose of 60−66 Gy, using conventional RT techniques (i.e. 6 MV wedged parallel-opposed photon beams, mean field sizes of ⩽ 36 cm^2 [6x6], fraction sizes varying between 2−2.3 Gy). Patients were analyzed for local control (LC). The Quality of Life (QoL) was determined by the EORTC H&N 35 questionnaire (investigating dry mouth, swallowing problems & speech). Also the VHI (Voice Handicap Index), as well as the thyroid function status (measuring TSH [Thyroid stimulating hormone] blood levels), were established. Finally an on-line image guided SVCI technique was developed (Osman et al., R&O 2008).
Results: For the 164 T1a patients, a LC rate at 5-years of 93% and a VHI of 12.7 (0−63) was determined. Using the SVCI technique it was feasible to irradiate one vocal cord within 1 mm accuracy. This way, sparing of the contralateral (CL) vocal cord and CL normal tissues at risk (e.g. the strap muscles, constrictor inferior muscle, carotid arteries, thyroid gland, laryngeal cartilages and arytenoids), could be achieved.
Conclusions: This paper first analyzes T1a vocal cord lesions when treated by conventional P-O external beam RT techniques. Planning studies using on-line image guidance demonstrated the feasibility of irradiating a single vocal cord with significant sparing of the CL normal tissues at risk. First few patients using cone beam CT have been treated and results will be discussed (e.g. voice, VHI, clinical photographs). A feasibility study of using a Cyberknife with large fraction sizes for SVCI in case of T1a lesions (5x8.5 Gy, prescribed to 80% isodose in overall treatment time of 2 weeks), is currently underway. It is argued that SVCI is a save and competitive alternative to laser surgery.

8560 POSTER

Dosimetry, Clinical Outcome and Quality of Life in Postoperative Image-guided Intensity Modulated Radiation Therapy in Sinonasal Cancer

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Background: This study is aimed to assess the dosimetry, clinical outcome and quality of life in patients of locally advanced sinonasal cancer undergoing surgery followed by adjuvant image-guided intensity modulated radiation therapy (IGIMRT).
Materials and Methods: We enrolled 5 patients (pts) of sinonasal cancer(stage III-IV, age ⩽70 years, KPS ⩾70, R0/R1 resection) for IGIMRT in a project. Clinical target volume (CTV) comprised high risk (HR) CTV: surgical bed and low risk (LR) CTV: retropharyngeal, level IB and II lymphnodal site(only in T3/T4 squamous or poorly differentiated carcinoma). An isotropic 3 mm expansion was given around CTV to generate planning target volume (PTV). Prescribed dose was 60 Gy/30#/6 weeks to HRPTV and 50 Gy/30#/5 weeks to LRPTV (simultaneous integrated boost). IMRT was planned by 7−9 coplanar equally spaced beams (step & shoot multileaf collimator) with 6 MV photons with dose prescribed at 95% isodose (Pinnacle TPS v8.0m). Treatment verification was performed with kilo-voltage cone beam CT(KVCBCT) on first 3 days of treatment and subsequently twice a week (Elekta Synergy S). Positional correction was done when translational error was >3 mm. Toxicity charting was done weekly using RTOG criterion. Quality of life was assessed pre-RT, immediate post-RT & 3 month post-RT using EORTC QLQ-C30 version3 & QLQ-H&N35module.
Results: The median age was 45 years with male: female ratio of 2:3. Primary site was nasal cavity-2 pts, maxilla-2 pts and eithmoid-1 pt (stage T4N0M0 in all). Histology was squamous, adenoid cystic and adenocarcinoma in 2, 2 and 1 pt respectively. Median D95 PTV was 58.75 Gy. Median conformity & homogeneity (D2/D98) indices were respectively 1.17 & 1.13. Median value of dose maximum to organs at risk (OAR) were- brainstem: 51.67 Gy, spinal cord: 33.66 Gy, optic chiasma: 54.45 Gy, optic nerve: 55.16 Gy (left) & 51.84 Gy (right), eye: 50.9 Gy(left) &