plan using simultaneous integrated boost (SIB) technique was generated on the basis of initial CT scan. The prescribed doses were 70 Gy to the planning target volume (Gross tumor volume(GTV) with a 5 mm margin), 59.4 Gy to the high-risk subclinical volume (CTV59.4), and 50.4 Gy to the low-risk subclinical volume (CTV50.4). The initial IMRT plan was projected onto the follow-up CT scan. Target volumes and organs at risk (OAR) were delineated on the follow-up CT scan and dosimetric changes of target volumes and OAR were analyzed.
Results: The average reductions of GTV and CTV59.4 were 37% (SD = 22%) and 9% (SD = 7%). The parotid volume was also reduced. The average volume reduction of thirty two parotids was 34% (SD = 19%). The initial average mean dose irradiated to parotid glands was 2613 cGy (SD = 242 cGy) but the average mean dose irradiated to parotid glands on the follow-up CT scan was 3162 cGy (SD = 683 cGy). The average maximal spinal cord dose and maximal brain stem dose were changed from 4279 cGy (SD = 95 cGy) to 4496 cGy (SD = 268 cGy) and from 2199 cGy (SD = 211 cGy) to 5339 cGy (SD = 520 cGy), respectively. However dose coverage of GTV and CTV59.4 was not change significantly.
Conclusions: IMRT may give rise to he significant overdose to OAR, especially parotid gland if adaptation to the volume changes of OAR is not performed. To prevent this problem, adaptive RT or modification of IMRT plan during treatment are needed.

8561 POSTER

Sentinel node mapping in patients with differentiated thyroid carcinoma: our institution's experience

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Background: The aim of this study was to evaluate sentinel lymph node mapping in patients with differentiated thyroid carcinoma (DTC).
Methods: From the year 2001 to 2008. we have performed SLNb in 40 with DTC. Before mobilization of the thyroid gland, approximately 0.2 ml of 1% solution of methylen blue dye was injected peritumorally. After approximately 10 minutes the dissection was continued above and beyond the omohyoid muscle, towards the internal jugular vein and common carotid artery until the blue stained lymph nodes were found and recognized and sent for frozen section examination. If any of the nodes was positive on frozen section, Modified radical neck dissection was performed after total thyroidectomy and routine dissection of central neck compartment.
Results: Twenty three patients had papillary thyroid carcinoma, eleven follicular carcinoma and six benign tumors. Identification of blue stained SLN was successful in 93.5% of case. Negative and positive predictive values were 94.7% and 100%, while overall accuracy of the methods was 95.6%. In the one patient with follicular carcinoma, SLN detection failed. Four patients had one radioactive node, one had three and one had four.
Conclusion: Our results imply that SLN biopsy in the jugulo-carotid chain using methylen blue dye mapping, is a feasible and accurate method for estimating lymph node status in the lateral neck compartment. The method could be helpful in detection of true positive but non-palpable lymph nodes and may support in patients with DTC.

8562 POSTER

Phase II study of docetaxel and carboplatin with concurrent radiation therapy for locally advanced head and neck cancer

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Background: Concurrent chemoradiotherapy with cisplatin has been a standard treatment of locally advanced head and neck cancer. The present study used docetaxel plus carboplatin concurrent with radiotherapy in stead of cisplatin. We sought to evaluate the clinical response rate at the tumor and safety profile of this treatment.
Materials and Methods: Thirty-eight patients were enrolled; 14 had oral cavity cancer (oral tongue 10, buccal mucosa 2, alveolar ridge 1, floor of mouth1), 10 had oropharyngeal cancer (base of tongue 5, tonsil 5), 13 had laryngeal cancer, and 1 had maxillary sinus cancer. Twenty- nine patients had stage IVA disease, and 9 patients had stage III disease. All patients received concurrent docetaxel 15 mg/m^2 one -hour infusion plus carboplatin AUC 2 30 minutes infusion on day 1, 8, 15, 22, 29, and 36. Radiotherapy began on day 1 of concurrent chemotherapy with 2 Gy per fraction, 5 fractions per week to total dose of 66−70 Gy. Tumor assessment was performed by CT scan after 3 months completion of concurrent chemoradiotherapy.
Results: Thirty-five patients were evaluated for response, two patients refused to receive all treatments, another one patient had serious adverse event from the first dose of docetaxel (rash, wheezing both lungs). Of 35 evaluable patients, 26 patients (74.3%) achieved a clinical response rate. Six patients (17.1%) had stable disease, and 3 patients (8.6%) had progression of disease. The 2 year disease free survival was 62.9%, The 2 year overall was 64.1%. The most common toxicity is radiation induced toxicity in every aspect with grade 2−3 mucositis in 85.7%, grade 2−3 skin dermatitis 51.4%, and grade 2−3 dysphagia 51.4%.
Conclusion: Administration of docetaxel plus carboplatin concurrent with radiotherapy results in high response activity and well tolerated in locally advanced head and neck cancer. The most common toxicity is radiation induced toxicity in every aspect.

8563 POSTER

Treatment outcomes for squamous cell carcinoma of the external auditory canal and middle ear

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Background: Squamous cell carcinoma (SCC) of the external auditory canal (EAC) and middle ear is extremely rare, with a yearly incidence of around one per one million people. The purpose of this study is to evaluate treatment outcomes for SCC of the EAC and middle ear.
Materials and Methods: Between 1990 and 2008, 38 patients treated at our institute for SCC of the EAC and middle ear were retrospectively investigated. Twenty-nine (76%) patients had primary EAC cancer and 9 (24%) had primary middle-ear cancer. There were 15 (39%) males and 23 (61%) females. Fourteen (37%) patients had T1−2 disease and 24 (63%) had T3−4 disease according to the Pittsburgh classification. Lymph node involvement was found in 7 (18%) patients. Thirteen (34%) patients received surgery (S), 12 (32%) received radiotherapy (RT), and 13 (34%) received surgery combined with radiotherapy (S + RT). All 14 patients with T1−2 disease received S, with or without RT. All 12 patients in the RT group had T3−4 disease, and 9 of them received concurrent chemoradiotherapy. The median total radiation dose of the 25 patients treated by RT was 60 Gy (range: 24−70 Gy). The median overall treatment time for RT was 41 days (range: 15−54 days).
Results: The median follow-up period was 32 months (range: 1−122 months). Ten patients experienced recurrence: six locally, three locally and in regional lymph nodes, and one only in regional lymph nodes. Twelve patients died during the period of this study. Ten died of primary disease (including postoperative epidural hematoma). The five-year overall survival (OS), disease-specific survival (DSS), and locoregional control (LRC) rates for all patients by the Kaplan-Meier method were 66%, 72%, and 69%, respectively. The five-year OS, DSS, and LRC rates according to treatment modality (S/RT/S+RT) were 77%/53%/63% ($p = 0.49$ by log rank test), 84%/53%/63% ($p = 0.51$), and 83% /53%/66% ($p = 0.56$), respectively. The five-year OS, DSS, and LRC rates according to T stage (T1−2/T3−4) were 92%/50% ($p = 0.03$), 92% /52% ($p = 0.02$), and 85%/57% ($p = 0.11$), respectively. One patient in the S+RT group experienced late radiation toxicity in the form of Grade 4 osteonecrosis.
Conclusions: Our treatment outcomes for T1−2 disease were excellent, and our outcomes for T3−4 disease were comparable with those of several previous reports. Although the standard treatment modalities for SCC of the EAC and middle ear are still unclear, our results indicate that S with or without RT is an appropriate therapy for T1−2 disease and that concurrent chemoradiotherapy may be a useful modality for T3−4 disease.

8564 POSTER

A Phase II study of docetaxel, cisplatin, and 5 FU induction chemotherapy followed by chemoradiotherapy in advanced nasopharyngeal cancer

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Background: The current standard treatment for locoregionally advanced nasopharyngeal cancer (NPC) is concurrent chemoradiotherapy (CCRT) with or without adjuvant chemotherapy. Several randomized trials of CCRT have demonstrated a progression-free survival (PFS) or overall survival (OS) benefit over radiation therapy (RT) alone. However, the

merits of adjuvant and neoadjuvant chemotherapy remain unproven. This study was performed to determine the feasibility and safety of induction chemotherapy with docetaxel, cisplatin and 5 FU (TPF) followed by concurrent chemoradiotherapy (CCRT) for advanced nasopharyngeal cancer (NPC).
Methods: Patients with metastatic or locoregionally advanced NPC were treated with 3 cycles of induction chemotherapy. Docetaxel (70 mg/m^2) and cisplatin (75 mg/m^2) were given on day 1, followed by 5 FU (1,000 mg/m^2) as a continuous infusion for 4 days and repeated every 3 weeks. After induction chemotherapy, cisplatin was given at a dose of 100 mg/m^2 every 3 weeks with radiotherapy.
Results: Thirty patients were enrolled and 25 patients completed both induction treatment and the subsequent CCRT. Response to the induction TPF (N = 30) was as follows: five patients (16.7%) achieved a complete response (CR) and 23 patients (76.7%) a partial response (PR). At 6 weeks after CCRT (N = 25), 17 patients (68%) had a CR and eight patients (32%) a PR. The median progression free survival was 38.2 months and the 3-year overall survival was 79.6%. The main hematological toxicity was neutropenia and leucopenia. A greater than grade 3 neutropenia was observed in 20 patients (66.7%); febrile neutropenia developed in one patient (3.3%). The major non-hematological toxicities were asthenia, nausea and mucositis.
Conclusions: The results showed that this treatment was very effective with manageable toxicity in locally advanced, and distant metastatic NPC. In the near future a randomized phase III trial comparing TPF followed by CCRT versus CCRT alone will be started by the Radiotherapy Oncology Group for Head and Neck (GORTEC); the results of this future study will help determine specific treatment regimens for patients with advanced NPC.

8565 POSTER

Surgery does not improve tonsil cancer patient's outcome in T2N1 stage compare to radiotherapy alone

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Radiotherapy is a common treatment method for tonsil cancer patients. Patients with advanced loco-regional disease are treated primarily with surgery followed by additional radiotherapy. The aim of this project is to compare the results of radiotherapy alone with combination of radical surgery with radiotherapy for patients with tonsil cancer.
Between 1997 and 2000, 63 patients with tonsil cancer were treated in Institute of Oncology Gliwice. Patient's age ranged from 37 to 72 years, average 58 years. There were 14 (22%) men and 49 (78%). Whole group was homogenous in stage, all patients in T2N1. Majority 33 (52%) of patients were treated with combined treatment-surgery with additional radiotherapy (S+RT). Surgery procedure was performed in each case in the same manner: radical tonsillectomy and one side selective lymphangiectomy. Thirty (48%) of patients were treated only with radiotherapy alone (RT).
In all patients radiotherapy was delivered in 2 Gy fractions, 5 days a week. Tumour bed or primary tumour irradiation was carried out to the total dose of 60−74 Gy. Locoregional elective lympn nodes irradiation continued to the total dose of 50−66 Gy and 66−70 Gy was delivered to the metastatic lymph nodes. Total doses 70−74 Gy were used for radiotherapy as a sole modality, and 60−66 Gy for postoperative irradiation. In majoraty 23 of patients (70%) negative surgical margins were achieved, in remaining 10 patients (30%) positive margins were present. Operated patients at the beginning of radiotherapy were free of the disease. Statistical analysis includes 5-year Kaplan-Meier estimates of OS and LRC.
Overall 5-year OS and LRC were 52% and 50% respectively. During 5-year follow-up, there were 22 local relapses (35%) and 8 distant metastases (12%). The 5-year OS was higher in the RT group 58% than S+RT group but this difference was not significant (HR=1.8, p = 0.12). Probability of loco-regional control was 67% in RT and 53% in S+RT groups, difference was close to significance (HR = 2.1, 0 = 0.08). There were 8 (26%) locoregional recurrences in RT group, 3 local and 5 regional, versus 14 (42%) in S+RT group, 10 local and 4 regional. Distant metastases in locoregional controlled patients were noted in 4 (23%) in RT and in 4 (12%) in S+RT group.
Radiotherapy alone in patients with tonsil cancer was more effective than combined surgery with irradiation. Lover combined treatment efficacy may be related to higher local recurrence rate.

8566 POSTER

Primary tumour site as a predictor of treatment outcome for definitive radiotherapy of advanced stage oral cavity cancers

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Purpose: The purpose of this study was to evaluate the outcome of definitive radiotherapy (RT) for oral cavity cancers and to assess prognostic factors.
Methods and Materials: One handred and fifteen patients with oral cavity cancers who received definitive RT from January 1995 to September 2007. Patient clinical stage distribution of stage III, IVA and IVB were 6%, 47% and 47%, respectively. The median dose of RT was 72 Gy (range, 62−76 Gy). Cisplatin-based chemotherapy was administered to 95% of patients. Eleven patients underwent salvage operation for RT-failure.
Results: In our cohort, 88 (76.5%) patients responded partially and 23 (20%) responded completely; of these, 18% and 57% experienced a durable effect of treatment. The 3-year overall survival (OS), disease-specific survival (DSS) and progression-free survival (PFS) was 22%, 27% and 25%, respectively. The 3-year PFS based on the primary tumor sites was as follows: group I (buccal, mouth floor and gum) 51%, group II (retromolar and hard palate) 18%, and group III (tongue and lip) 6% ($P < 0.0001$). The 3-year PFS for N0 patients was 41% and 19% for patients with N+ disease ($P = 0.012$). T stage and radiotherapy technique did not impact to survival. Patients underwent salvage surgery for RT failure demonstrated better 5-year OS and DSS (35% *vs.* 13%, P = 0.015 and 53% *vs.* 22%, P = 0.029, respectively).
Conclusion: Primary tumor site and neck stage are prognostic predictors in advanced stage oral cancer received radical radiotherapy. Primary tumor extension and radiotherapy technique did not influence survival. More aggressive treatment may be considered for unresectable disease.

8567 POSTER

Nasopharyngeal carcinoma: prognostic factors and long-term outcomes with emphasis on radiotherapy techniques

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Background: To evaluate long-term outcome after treatment of nasopharymgeal carcinoma (NPC) and determine the prognostic factors, with emphasis on radiation technique.
Materials and Methods: Retrospectively analyzed patients with NPC (n = 119) treated with curative intent in a single institute between 1982−2007. Stage IV, III and I+II (UICC 2002) were 40%, 35% and 25% respectively. Radiotherapy techniques were: 2D-RT (n = 52), 3D-CRT (n = 46) and IMRT (n = 19). Concomitant chemoradiation (CHRT) were given to 23 patients. The prescribed dose to tumour was 70 Gy. The locoregional recurrence (LRR), systemic failure, disease free survival (DFS), overall survival (OS) and prognostic factors were calculated using uni- and multivariate analysis.
Results: The 5-year actuarial LRR free survival, systemic failure free survival, DFS and OS were 57%, 72%, 46% and 38% respectively. The independent prognostic factors were: stage for all end points, pathological type and IMRT for LRR; 3D-RT, and IMRT for DFS; and finally age and CHRT for OS.
Conclusions: With regard to equally dose of 70 Gy for all patients the impact of radiation technique on the end points and superiority of IMRT compared to 3D-CRT can not be explain by radiation dose. These may be explained by the use of advanced imaging based on CT-MRI-PET scanning for preparation of an IMRT plan.

8568 POSTER

Prophylactic swallowing exercises during and after radiotherapy for head and neck cancer - results of phase I trial

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Background: Dysphagia is a common and severe side effect after radiotherapy (RT) for head and neck cancer (HNC). Alterations of all structures and functions of the throat have been described. At the same time structures important for swallowing are often tumour embedded or close to target areas, making swallowing sparring RT an uncertain strategy with respect to both efficacy and safety. Therefore, we wanted to examine the effect of prophylactic swallowing exercises in HNC patients. The current reports concerns the phase I feasibility study.