patients tolerated only 1 cycle synchronous chemotherapy. IMRT allowed excellent target coverage and spared critical structures but did not meet dose constraints to cochlea or parotid gland, partly due to the high proportion of patients with bilateral cervical nodal disease.

8551 POSTER

Comparison of Acute Toxicities in Head and Neck Cancer Patients Receiving Radiation as Adjuvant Therapy With Surgery Versus Radiation With Concurrent Chemotherapy

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Background: Patients with locally advanced head and neck carcinoma have two options of combined modality treatment namely either surgery and postoperative radiotherapy [S-PORT] or concurrent chemoradiation [CRT]. During the last ten years, chemoradiation is considered a suitable curative approach with organ preservation. Yet, poor compliance and toxicity remain a deterrent to successful treatment completion. The intent of this study is to perform a cohort analysis of such patients at this regional centre.
Materials and Methods: 59 patients of locally advanced head and neck carcinoma were chosen for the study. Twenty nine of them had had surgery and postoperative radiotherapy while thirty had concurrent chemoradiation. All of them were monitored during the course of radiotherapy at weekly intervals. Toxicity grading was done using RTOG Acute Radiation Morbidity Scoring Criteria. Dermatitis, oral mucositis, pharyngitis, laryngitis and salivary gland toxicity were observed. Pearson Chi-Square test was used to compare different toxicities in S-PORT and CRT groups at both second and last week of radiotherapy course. Comparison was done between individual grades in both groups as well as between combined grades (low grade including grades1, 2 and high grade including grades 3, 4). A value of $p < 0.05$ is taken as statistically significant in our study.
Results: The median age was 50 years in S-PORT group and 55 years in CRT group. Site wise distribution of cancer in S-PORT and CRT groups were 1 and 14 patients in oropharynx, 19 and none in oral cavity, 3 and 6 in larynx and 2 and 6 in hypopharynx respectively. No difference was noted in the groups for all of the toxicities assessed [$p = 0.584$ for dermatitis, $p = 0.901$ for oral mucositis, $p = 0.349$ for pharyngitis, $p = 0.136$ for laryngitis, $p = 0.532$ for salivary gland toxicity].

Table 1. Distribution of toxicities in two treatment groups (all values are in number of patients)

Acute toxicities	RTOG Grades 1 & 2		RTOG Grades 3 & 4	
	S-PORT (n = 29)	CRT (n = 30)	S-PORT (n = 29)	CRT (n = 30)
Dermatitis	25	25	3	4
Oral mucositis	23	25	4	3
Pharyngitis	15	17	9	11
Laryngitis	17	24	3	2
Salivary gland toxicity	26	28	0	0

Conclusions: The toxicities due to radiotherapy are comparable in patients of locally advanced head and neck carcinoma receiving either surgery with adjuvant radiotherapy or concurrent chemoradiation. Comparison in individual primary cancer sub site needs to be done to know the potential difference in treatment tolerance in both these treatment groups.

8552 POSTER

Phase 2 Trial of Total Mucosal and Bilateral Neck Intensity Modulated Radiotherapy in Squamous Cell Cancer of Unknown Primary

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Background: Squamous cell carcinoma of unknown primary (SCCUP) metastatic to cervical lymph nodes (LNs) constitutes about 2% of all head and neck carcinomas. There is no consensus on a standard radiotherapy clinical target volume (CTV) (ipsilateral neck only vs bilateral neck and mucosal tube) or dose to the CTV (50−70 Gy). The aim of this study was to assess safety and feasibility of total mucosal and bilateral neck intensity modulated radiotherapy (TMI/BN-IMRT).
Methods: We performed a single arm phase 2 prospective trial (RMH CCR2823). All patients (pts) had imaging (PET-CT 9 pts, CT 10 pts), pan-endoscopy and tonsillectomy or biopsy to exclude an occult primary. Patients with stage T0, N1−3, M0 (AJCC TNM 2002) disease were treated using a 5- to 7-field IMRT technique. CTV1 was the ipsilateral level 1b-5 and retropharyngeal (RP) LN. CTV2 was the mucosa of nasopharynx, oropharynx, larynx, hypopharynx and contralateral cervical level 2 to 5 and RP LNs. Prescribed dose to PTV1 and PTV2 in 30 fractions were 60−65 Gy (depending on resection status R0−60 Gy, R1/R2−65 Gy) and 54 Gy, respectively. Five patients received 65 Gy to PTV1. No prophylactic enteric feeding tubes were inserted.
Results: Nineteen pts (10 male) with a median age of 53.7 years (range 43.5–66.6 years) were treated between July 2007 and May 2010. Histology was SCC (18 pts) and undifferentiated carcinoma nasopharyngeal type (1 pt). Twelve pts received chemoradiotherapy with concomitant platinum and 7 pts had RT alone. The median treatment time was 41 days (range 39−43 days). All pts received the prescribed dose with no clinically significant delays. The acute toxicity (CTCAE v2.0) rate for grade 3 and 4 oropharyngeal mucositis was 31.6% and 0%, respectively, and grade 3 and 4 pharyngeal dysphagia was 36.8% and 0%, respectively. A nasogastric tube was inserted in 6 of these 7 patients with a median tube dwell time of 30 days (range 22 to 170 days). At a median follow-up of 23.7 months (range 2.5−43 months) no primary head and neck cancers were seen. Two-year overall survival, loco-regional recurrence free survival and distant metastasis free survival rates were 72.7%, 84%, and 94.4%, respectively.
Conclusion: This trial shows that primary or adjuvant TMI/BN-IMRT delivering 60−65 Gy to ipsilateral neck LN and 54 Gy to TM/contralateral neck LN is feasible and well tolerated. No primary head and neck cancers developed and the grade 3 or 4 dysphagia rate was low compared to previously reported TMI-IMRT regimens.

8553 POSTER

The Risk of Fatal Aspiration Pneumonia in Patients Treated With Curative Radiotherapy for Head and Neck Cancer

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Background: Severe dysphagia leading to penetration of food to the larynx and manifest aspiration is a common side effect after radiotherapy (RT) for head and neck cancer[1]. The aim of this study was to investigate the incidence and mortality of aspiration pneumonia in head and neck cancer patients treated with curative RT.
Materials and Methods: Patients treated with curative radiotherapy for head and neck cancer in Aarhus from Jan. 1st 2006 to Dec. 31st 2008 were included. Data on patient, tumour and treatment characteristic were obtained from the DAHANCA database. Data on hospital admissions with infectious diseases, airway infections, pneumonia, other diseases in the airway and dysphagia were obtained from the National Patient Registry. Data from the National Registry of Causes of Death on all deaths and causes of death in the cohort were obtained and merged by the unique id number given to all Danish citizens at birth.
A total of 341 consecutive patients with cancer of larynx, pharynx and oral cavity were included; median age at 63.8 years and 76% were men. Most patients had Stage IV disease (55%). No patients received chemotherapy as a part of the curative treatment.
Results: In the first year after RT there were 68 hospital admissions in 46 (13%) patients. A total of 17 patients were diagnozed with dysphagia. One patient was diagnozed with aspiration pneumonia, 23 patients were diagnozed with pneumonia and 11 patients were diagnozed with other airway infections or unspecified symptoms like fever, respiratory failure etc. 40 patients (12%) died during the first year after RT, 1 from lung cancer, 1 from unknown causes, 1 with infection and 3 from other diseases unrelated to infection or pneumonia.
Of the 128 patients who died, 85 had died with uncontrolled head and neck cancer. The 43 deaths occurring in relapse-free patients were unrelated to aspiration and pneumonia in 30 cases (20 died from other cancers (primarily lung cancer); 6 from cardiac diseases;and 4 from haemorrhage). In 13 cases aspiration and/or aspiration pneumonia could not be ruled out as contributing cause of death: 6 pneumonia and 7 unexplained causes. Of these, 4 had dysphagia, 3 had PEG tubes and 2 had been diagnozed with pneumonia within the last months.
Conclusion: Up to one third of all deaths in relapse-free patients after radical RT may be associated with dysphagia-related aspiration and pneumonia.

8554 POSTER

Helical Tomotherapy as a Treatment for Tumours Involving or Close to Optical Structures − Single Institution Initial Experience

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Background: Intensity modulated (IMRT) and image guided radiotherapy (IGRT) possibly enable an adequate dose with good coverage in head and neck tumours, reducing the toxicity in the organs at risk (OAR). Helical tomotherapy (HT) provides an integrated IMRT-IGRT system.