54.8%, 20% and 13.7%. Xerostomia grade 2 appeared in 72.5% and 49.3% (RA/IMRT) of all cases. For all results, there was no statistically sigificant difference ($p \geqslant 0.05$, Mann-Whitney). Treatment could be delivered within 4 minutes, compared to more than 10 minutes for conventional IMRT.
Conclusion: Deliver rotational radiotherapy with SIB using RA is a quicker approach to irradiate complex volumes in patients with locally advanced HNSCC with acute toxicity comparable to conventional IMRT. RA has become our standard treatment approach for locally advanced HNSCC.

8506 ORAL

Cisplatin dose intensity correlates with outcome in patients with locally advanced head and neck squamous cell carcinoma receiving concurrent cisplatin based chemoradiation: a multi-institutional experience

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Background: A standard treatment option for patients with locally-advanced head and neck squamous cell cancer (LA-HNSCC) consists of concomitant cisplatin (CDDP) and radiation (RT). However the optimal dose and scheduling of CDDP is still controversial. To date, the significance of giving the full intended dose of CDDP (300 mg/m^2) on cancer-control has not been evaluated prospectively. To this end, we retrospectively evaluate 301 LA-HNSCC patients treated with chemoradiation (CRT).
Methods: the study population consists of 301 non-nasopharynx LA-HNSCC patients treated with primary CRT between January 2002 and September 2008 both in our Institution and at Princess Margaret Hospital in Toronto, Canada. Only patients that received CDDP and concomitant full dose of RT were included. The data collected consisted of patients and, tumor characteristics, CDDP and RT delivery details, toxicity, overall survival (OS) and disease-free survival (DFS).
Results: median age: 57; male: 77%; ECOG performance status 0: 67%; 0 comorbidities: 36%; oropharynx tumors: 60%; T3: 24%; T4: 30%; N2a: 6%; N2b: 32%. Of 301 patients, 278 (92%) received 70/72 Gy and 13 (4%) received 66 Gy, mainly due to the use of intensity-modulated radiation therapy with simultaneous integrated boost technique (IMRT-SIB). Of all, 94 (31%) patients received full-dose CDDP. The 2-year OS and DFS were respectively 83% and 70%. In multivariate analyses. Poorer ECOG-PS was significantly associated with decreased OS ($p < 0.001$). Conversely, oropharynx tumors were associated with better OS ($p = 0.004$). No prolongation of overall RT duration was significantly associated with improved OS ($p < 0.001$). Full-dose CDDP significantly increased overall DFS ($p = 0.009$). Interestingly, full-dose CDDP CT was associated with better local and regional DFS ($p = 0.005$), but not with distant DFS.
Conclusions: in patients with LA-HNSCC, full dose CDDP is associated with better DFS rates. Our data confirm that the dose of CDDP plays an important role in this patients' category. Whether CDDP based neoadjuvant can compensate for the suboptimal dose of CDDP in the concomitant phase is still to be demonstrated.

Poster presentations (Tue, 22 Sep, 09:00−12:00)
Head and neck cancer

8507 POSTER

The EGFRvIII variant in squamous cell carcinomas of the head and neck: Expression and correlation with clinico-pathological parameters in 675 patients from the randomised DAHANCA 6/7 study

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Background: The Epidermal Growth Factor Receptor (EGFR) is frequently overexpressed in squamous cell carcinomas of the head and neck (HNSCC). Genomic rearrangements can give rise to modified variants like EGFRvIII, which is a truncated receptor formed by a 267 amino-acid in-frame deletion. EGFRvIII has only sparsely been studied in HNSCC and the constitutively activation of this receptor may account for the relatively low response rates to EGFR-inhibitors. The aim of the present study was to describe the expression of EGFRvIII and correlate this with wtEGFR expression and clinical parameters.
Material and Methods: Formalin-fixed paraffin embedded tissue-blocks from 675 patients is at present available and evaluated for the expression of wtEGFR and EGFRvIII. All patients were randomised to primary radiotherapy 5 or 6 fx/week, 2 Gy/fx, in total 66−68 Gy. wtEGFR was visualised using a well known commercial antibody, whereas the antibody against EGFRvIII is relatively new but is specific for the variant receptor when tested by western blot. Expression of wtEGFR was evaluated on a 4-grade scale and the data was dichotomised into high or low expression by the cut-point 50% of positive tumour staining. EGFRvIII is at present only evaluated as a positive or negative staining. Expression was correlated to patient- and tumour characteristics and when the full cohort of up to 800 patients is evaluated, then outcome data will be analysed.
Results: EGFRvIII was present in 267 (40%) of the tumours, with a non-uniform staining pattern. Expression was evenly distributed in the larynx and pharynx (37 and 40%) and in 51% of the tumours of oral origin and expression of EGFRvIII was inversely correlated wtEGFR ($p = 0.001$). In contrast to wtEGFR, the expression of EGFRvIII was not more frequent in low differentiated tumours compared to well differentiated HNSCC. No other correlations with patient or tumour characteristics were observed.
Conclusions: This is by far the largest clinical study of EGFRvIII in head and neck cancer. The variant is expressed in 40% of the tumours in a heterogeneous pattern not related to the expression of wtEGFR. When the full cohort is evaluated, outcome data will be analysed and presented at the meeting.
Presented on behalf of the Danish Head and Neck Cancer group (DAHANCA)

8508 POSTER

Preliminary results of the randomized phase II TREMPLIN study: TPF Induction chemotherapy followed by radiotherapy plus cisplatin or cetuximab

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Background: induction chemotherapy (ICT) followed by radiotherapy (RT) or concurrent chemoradiotherapy (CRT) in case of objective response were a standard alternative to total laryngectomy and indicated for larynx preservation (LP) strategy. Data have suggested that cetuximab may add to improve the efficacy of radiotherapy in head and neck cancer. Docetaxel-based ICT was the most effective schedule. The objective of this phase II randomized trial was to compare the 3 months larynx preservation rate after TPF induction regimen followed by radiotherapy plus either cisplatin or cetuximab.
Material and Methods: the French GORTEC-GETTEC group initiated a randomized phase II study in previously untreated patients (pts) for whom surgical procedure required total laryngectomy. Eligible pts received 3 cycles of ICT (docetaxel and cisplatin both 75 mg/m^2 on day 1 and 5-FU 750 mg/m^2/day on days 1−5). In case of response $\geqslant$50% pts were randomized to receive either in arm A: RT (70 Gy) with cisplatin (100 mg/m^2 on days 1, 22 and 43 of RT) or in arm B: Cetuximab (400 mg/m^2 week 0 and 250 mg/m^2 on the first day of the 7 weeks of RT). Pts with response <50% had surgery. Primary endpoint was LP 3 months after treatment, secondary endpoints were larynx function preservation at 18 months, quality of function and tolerance to treatment.
Results: from March 2006 to April 2008 (end of accrual), 153 pts with stage III-IV larynx/hypopharynx cancer were enrolled in the study and could start ICT. Patients and T characteristics (age, sex, PS, primary site, TN) were well balanced. Of them 74 % could receive the planned ICT while the others had either reduced dosages or less than 3 cycles. Toxic deaths occurred in 2 pts (1.3%). Of the 149 evaluable pts after ICT, 22 were non-responders (15%), 4 pts were withdrawn from the study, 7 pts had ICT-related toxicity precluding any further cisplatin and 116 pts could be randomized (60 in arm A and 56 in arm B). 58 patients started RT + cisplatin ant 55 RTE + cetuximab. The 3 months LP rates were not statistically different (92% in arm A and 98% in arm B). In arm A, 43 % of pts could receive the full CRT protocol versus 71 % in arm B. In arm A 50% of pts had cisplatin-related toxicity (definitive in 52% the cases) while in arm B 26 % of patients had cetuximab-related toxicity (definitive in only 1 case). There was no CRT treatment-related death.
Conclusion: TPF-ICT followed by RT with concurrent cetuximab appeared more manageable than concurrent cisplatin with the same LP rate 3 months

after treatment. A long term follow-up is necessary to conclude in term of LP rate, quality of live and functional larynx rate.

8509 POSTER

Development of a nomogram for prediction of survival and local control in larynx carcinoma treated with radiotherapy alone: a cohort study based on 994 patients

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Background: To advice a patient with a larynx carcinoma which treatment is best, a tool to predict survival and local control is needed. A number of prognostic factors for survival as well as local control have been identified. However, the exact importance of these factors in daily clinical practice and the treatment-decision making process needs to be determined. We therefore developed prediction models for survival and local control, for patients treated with radiotherapy alone, taking into account established prognostic factors.
Material and Methods: We performed a population based cohort study on 994 patients with a larynx carcinoma, treated with radiotherapy alone at the MAASTRO Clinic from 1977 until 2008. Prognostic factors that were investigated were: pretreatment hemoglobin level, age, sex, cT-status, cN-status, location of the tumor (glottic versus non-glottic), and eqd2T (total radiation dose corrected for fraction dose and overall treatment time). Performance of the models was expressed as the C-statistic. The maximum value of the C-statistic is 1.0; indicating a perfect prediction model. A value of 0.5 indicates that 50% of the patients are correctly classified, e.g. as good as chance. Hazard ratios (HR) were reported. The results of the multivariate analysis were used to develop a nomogram.
Results: Median follow-up was 140 months. Median 6-year survival for stage I and stage II disease was 72 months, for stage III disease 44 months, for stage IVA 17 months, and for stage IVB disease 5 months. In the multivariate analysis, independent unfavorable prognostic factors for overall survival were low hemoglobin level ($p < 0.0001$, HR 0.67), male sex ($p = 0.0002$, HR 2.30), high cT-status ($p < 0.0001$, HR 1.22 for T2 compared to T1, 2.22 for T3, and 4.29 for T4), presence of nodal involvement ($p = 0.034$, HR 1.46), higher age ($p < 0.0001$, HR 1.04), lower eqd2T ($p = 0.0037$, HR 0.97), and non-glottic tumor ($p = 0.0725$, HR 1.31). Prognostic factors for local control were hemoglobin level ($p < 0.0001$, HR 0.75), sex ($p < 0.0001$, HR 2.47), cT-status ($p < 0.0001$, HR 1.52 for T2 compared to T1, 2.48 for T3, 4.28 for T4), presence of nodal involvement ($p = 0.0059$, HR 1.51), age ($p = 0.0012$, HR 1.02), and eqd2T ($p = 0.0011$, HR 0.97). C-statistic of the models was 0.73 and 0.67, respectively.
Conclusions: We have built visual, ready to use nomograms for prediction of survival and local control with several easy assessable clinical factors, for patients with larynx carcinoma treated with radiotherapy alone.

8510 POSTER

'About Face' survey uncovers significant between-country variation across Europe in general public's awareness of head & neck cancer

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Background: In Europe, the reported incidence and mortality rates of head and neck (H&N) cancer are approximately 143,000 and 68,000 per year, albeit with significant differences between individual countries. Despite this, the general public's awareness of H&N cancer is thought to be very low across the continent. The pan-European 'About Face' survey was planned and conducted in collaboration with the European Head & Neck Society (EHNS) to gauge current awareness and understanding of H&N cancer, with a focus on whether there are significant differences between countries that need to be addressed.
Methods: A total of 7,520 Omnibus internet interviews were conducted in France, Germany, Italy, The Netherlands, Spain, Sweden and the UK in September 2008.
Results: Overall, 77% of respondents were unaware of the term H&N cancer (ranging from 89% in the UK to 61% in Italy), while 89% were not aware that they knew anyone who had been affected by the disease (96% UK, 75% Italy). Those countries where more respondents believed that they knew someone who had been affected by H&N cancer also showed an increased awareness of the term, and vice-versa. German and Swedish respondents were more likely to identify body parts affected by H&N cancer correctly, although 60% overall believed that 'H&N cancer' includes tumors of the brain. There was general consensus across all countries that certain lifestyle factors may increase the risk of developing the disease. Awareness that certain sexual habits may increase risk was low in all countries (mean: 5%, range: 4−9%). Respondents from both Italy and Spain had a lower level of knowledge of the symptoms of H&N cancer than other countries, especially Germany. Overall, consequences of surgery were seen as the most distressing potential symptom of H&N cancer, particularly in Sweden (33% of respondents) and the UK (32%).
Conclusions: The pan-European 'About Face' survey identified a lack of knowledge amongst the general public of the risk factors and symptoms of H&N cancer. Moreover, there were significant differences between individual countries which should be investigated further. In some countries (e.g. the UK), a simple increase in awareness of the disease in general is required, while educational activity in countries such as Italy and Spain may need to focus more on increasing awareness of symptoms of H&N cancer. Further education of the general public on H&N cancer is clearly warranted.

8511 POSTER

Long-term outcome and morbidity after treatment with accelerated radiotherapy and weekly cisplatin for locally advanced head and neck cancer

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Background: To evaluate the long-term outcome and morbidity after treatment with accelerated radiotherapy combined with weekly cisplatin for locally advanced head and neck cancer.
Methods and Material: Between May 2003 and December 2007, 77 patients (median age 53 years) with locally advanced (stage III-IV) squamous cell carcinoma of the oral cavity (n = 12), oropharynx (n = 41), hypopharynx (n = 23) and larynx (n = 1) were treated at our hospital. Treatment consisted of accelerated radiotherapy with concomitant boost up to a dose of 68 Gy over a total period of 5.5 weeks and concurrent intravenous cisplatin 40 mg/m^2 weekly. Long- term survivors were invited to a multidisciplinary outpatient clinic for assessment of late morbidity using the RTOG/EORTC scoring system. All patients had a radiologic evaluation of swallowing function.
Results: The median follow up for the whole group was 28 months (range 3−68). Three-year disease specific survival, disease free survival and overall survival rates were 69%, 51% and 57% respectively. Local recurrence free survival at three years was 66%. Radiotherapy was given as planned in all but one patient and 91% received at least 5 cycles of cisplatin. At time of evaluation 43 patients were still alive of whom 32 patients participated in the mulitdisciplinary late morbidity clinic. Five patients (16%) suffered grade 4 toxicity, 2 had a laryngeal necrosis and 3 osteoradionecrosis. The five year actuarial rate of grade 3 or 4 toxicity on all sites was 52% and 25% respectively. Of the 32 patients who participated, 5 patients (16%) were able to eat without any restrictions and 2 patients (6.3%) depended on a gastric feeding tube. Radiologic evaluation demonstrated impaired swallowing in 57% of the patients. In 7 patients (23%) there was silent aspiration on liquids or thickened fluids, 8 (27%) suffered from stasis above the epiglottis and 9 (28%) had problems with transporting the thickened fluids or solid food from the oral cavity to the oropharynx.
Conclusion: This regimen of accelerated radiotherapy with weekly cisplatin produces 3-year survival rates that compare favorable to regimes using only accelerated radiotherapy or conventionally fractionated radiotherapy plus chemotherapy for advanced head and neck cancer. Long-term morbidity however was not insignificant and swallowing was objectively impaired in the majority of the patients with more than 20% silent aspiration. This has important consequences for supportive care and rehabilitation.

8512 POSTER

Swallowing complaints strongly correlate with salivary gland function, 1 year after radiotherapy for head and neck cancer

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Background: Swallowing complaints and xerostomia after radiotherapy (RT) for head and neck cancer negatively influence quality of live of