hours after the end of the first course of chemoradiotherapy. Adduct levels were determined by immunocytochemistry using the polyclonal antibody NKI A-59 for the buccal cells. A $^{32}$P-postlabeling technique was used to quantify selectively the major cisplatin-DNA adducts (GG and AG adducts) in WBC and tumor.

**Results:** So far, in 16 patients, adduct levels have been measured; 10 after i.v. and 6 after i.a. cisplatin infusion. Tumor sites were oropharynx (n=10), oral cavity (n=3) and hypopharynx (n=3). Normal tissue samples were obtained from all 16 patients, primary tumor from 10 patients with tumors, accessible for biopsy. See table for results of the adduct-levels in tumor and WBC.

| Chemotherapy- regime, concurrently with RT: | | Cisplatin-DNA adducts (in fmol/ μg DNA) in: | | | |
|---|---|---|---|---|---|
| | | WBC | | Tumor | |
| | | *GG* | *AG* | *GG* | *AG* |
| 100 mg/m2 i.v. | *mean* | 0,929 | 0,117 | 3,946 | 0,388 |
| | *SD* | 0,249 | 0,036 | 1,183 | 0,067 |
| 150 mg/m2 i.a. | *mean* | 0,826 | 0,093 | 4,070 | 0,373 |
| | *SD* | 0,211 | 0,028 | 0,523 | 0,145 |

The difference between adduct levels in WBC and primary tumor was statistically significant ($p<0.02$) for both the i.a. and i.v. treated patients. There were no differences in adduct levels in either WBC or tumor between the i.a. and i.v. group. Analysis of adducts in buccal cells is ongoing.

**Conclusions:** Cisplatin-DNA adduct levels in primary tumor of H&N cancer are 4-fold increased compared to WBC, both after supradose i.a. and conventional i.v. cisplatin-based chemoradiation. Despite the selective supradose i.a. administration of cisplatin, adduct levels in primary tumor are comparable to levels obtained after conventional i.v. cisplatin. Whether cisplatin-DNA adduct levels correlate with treatment outcome, is subject of current research.

110 POSTER

## Cisplatin + vinorelbine in recurrent salivary gland malignancies: final report on 42 cases

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In a randomized trial we have shown that cisplatin (DDP) + vinorelbine (VNB) is superior to VNB alone in recurrent Salivary Gland Malignancies (SGM) (Cancer 91:541-7:2001), although results on a large number of pts are lacking. Here we report final results of this combination. Between April 1993 and February 2001 42 pts (35 m, 17 f; median age= 57 yrs; median ECOG PS= 1) affected by recurrent/metastatic SGM (major SG = 23 pts, minor SG = 19 pts / adenocarcinoma = 10 pts; adenoid cystic ca. =27, malignant mixed t. =1; undifferentiated ca.=3; mucoepidermoid ca.=1 / local recurrence = 18 pts, local + mts =7, mts only =17) have been treated with DDP 80 mg/m$^2$, on day 1 plus VNB 25 mg/m$^2$ on day 1 and 8 (every 3 weeks for a minimum of 3 cycles). All pts had received a loco-regional treatment (surgery + radiation =36 pts; surgery =3; radiotherapy =3) and 12 pts had received a first line DDP-based chemotherapy. Results of first line DDP+VNB (30 cases): 4 CR (13%), 8 PR (27%), 11 NC (37%) and 7 PD (23%); median CR duration =15 months (6-28); median PR duration =7.5 m (3-11); median overall survival =10 months (range=3-29; CR=19 m.; PR= 12.5 m). Results of second line DDP+VNB (12 pts) =2 PR (17%), 4 NC (33%) and 6 PD (50%); median PR duration =4 m.; median overall survival =5 m. (1-12). Toxicity (42 pts): G3: nausea/vomiting 7%, leukopenia 12%; G2: nausea/vomiting 50%, leukopenia 19%, thrombocytopenia 7%, anemia 7%, peripheral neurotoxicity 7%. In conclusion DDP+VNB is an active first line combination for recurrent/metastatic SGM with acceptable toxicity; the clinical role of this scheme in second line therapy is poor.

111 POSTER

## Early stage oral cavity squamous cell carcinoma

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**Introduction:** To evaluate the treatment result of early stage oral cavity cancer and assess the importance of elective neck dissection

**Material and Methods:** There were 781 clinical stage I-II oral cavity cancer received radical surgery in Chang Gung Memorial Hospital from April 1, 1994 to July 31, 2002. The median age was 50 (ranging from 23 to 85) and 712 (91.2%) are male, 69 (8.8%) are female. Only 88 (11%) patients are without smoking, alcohol and/or betal quid exposure. Seven hundred and fifty seven (96.9%) patients received CT or MRT as staging modality. Three hundred and sixty (46.1%) patients were T1 lesion and 421 (53.9%) were T2 lesion. The site distribution was tongue: 397 (50.7%), gum: 30(3.8%), palate: 51(6.5%), cheek: 223(28.6%), retromolar: 28(3.6%), lip: 22(2.8%), and mouth floor: 30(3.8%). Four hundred and eighty eight (62.5%) patients received elective supra-omohyoid neck dissection. Free tissue flap was performed after excision by plastic surgeons. One hundred and twenty nine (16.5%) patients received postoperative radiotherapy.

**Result:** N stage change is noted in 58 (11.9%) patients after neck dissection. There are 12 (6.6%) patients in T1 lesions and 46 (15.1%) in T2 lesions (p=0.008). T upstage is noted in 25 patients after operation. Bone invasion is found in 11 (1.4%) patients. The 5-year overall survival for clinical stage I is 83.8% and 79.4% for stage II (p=0.06). The 5-year overall survival for pathological stage I is 78.6%, stage II: 73.4%, III-IV: 71.2%. (p=0.002). Neck operation or not has no significant survival difference in overall survival (79.66% vs. 72.3%, p=0.161) but significant difference in loco-regional recurrence (32.4% vs. 18.9%, p=0.000). However, in the tongue cancer patients, neck operation has significant survival benefit. (84.6% vs. 75.6%, p=0.047) and no difference in other subsites.

**Conclusion:** There are about 12% of patients will become positive neck lymphadenopathy after elective neck dissection in clinical stage I-II patients. Elective neck dissection may be considered in early stage oral cavity cancer to improve loco-regional control especially for tongue cancer that neck dissection may improve survival.

112 POSTER

## Head and neck reconstruction in oncology

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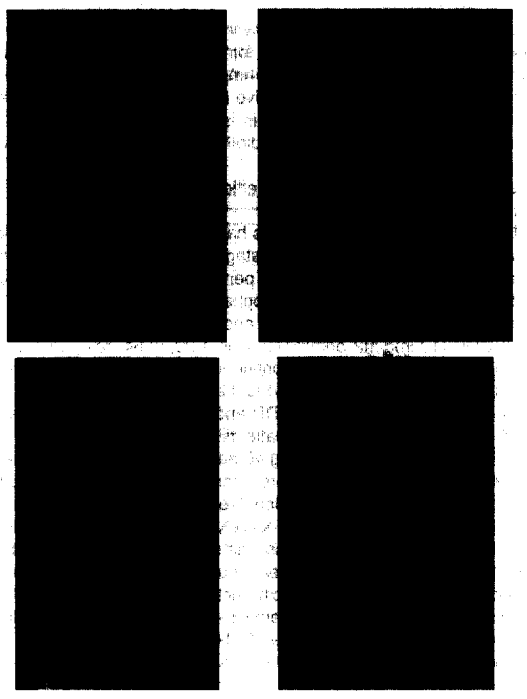
**Introduction:** Advanced carcinomas involving head and neck present a major therapeutic challenge because of their poor prognosis, the frequently associated medical problems of the patients, and the adverse effect of treatment on oral and pharyngeal function. Therapeutic techniques combining multiple treatment modalities are commonly employed for patients with advanced disease. Modern reconstructive techniques allow immediate reconstruction and better functional outcomes, while allowing the patients to progress through to multimodality treatment in a timely manner.

**Material and Methods:** Between February 1990 and March 2003 we performed head and neck reconstructions in 412 patients (M-353/F-59) with myocutaneous flaps, 26 of which were full-thickness defects. To repair these defects we have used the following 426 flaps: Pectoralis major 297; Trapezius myocutaneous flap 39; Sternocleidomastoid 4; Platisma 8;



Temporal 45; Latissimus dorsi free flap 5, Osteocutaneous scapular flap - 2; Rectus abdominal free flap 10, Radial forearm flap 4; Fibula free flap 3, Free jejunal graft 3; Pectoralis major + Trapezius myocutaneous flap 3; Pectoralis major myocutaneous flap + Temporal 3. Both ablative and reconstructive procedures were performed in a single operation with a mean duration of 4,30 hours and a mean hospitalisation of 21 days.

**Results:** Our morbidity was fistula in 32 pts that solved spontaneously. There was 16 partial necrosis and 8 total necrosis of the flap. Per-operative mortality occurred in 2 pts.

**Conclusion:** Once survival is conditioned by the stage of the disease, the goal of surgery in this group of patients is to relieve suffering and to restore form and functions as oral continence, speech and swallowing, with short duration of hospitalisation and low morbidity. We feel we had improved the quality of life and, perhaps, also the quantity of life of these patients.

113 POSTER

## Preliminary results of a prospective randomized study of chemoradiation comparing cisplatin vs carboplatin in locally advanced nasopharyngeal cancer

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**Background:** The results of a randomized North American Intergroup trial demonstrated a superior outcome with chemoradiation therapy (CRT) with concurrent 100 mg/m$^2$ of cisplatin during radiation therapy (RT) and three additional cycles of cisplatin 80 mg/m$^2$ and 5-FU 1000 mg/m$^2$ x 4 days. Carboplatin is a derivative of cisplatin and easy to use as out patient with less renal toxicity but more hematotoxicity. To establish the value of carboplatin, we compare the foremention regimen with concurrent carboplatin 100 mg/m$^2$, weekly during RT and 3 additional cycles of carboplatin AUC 6 and 5-FU 1000 mg/m$^2$/day x 4 days after RT in patients with locoregionally advanced nasopharyngeal cancer (NPC). The endpoints included disease free survival (DFS), overall survival (OS), toxicities and compliance rates.

**Methods:** From August 1999 to June 2002, 114 patients with locally advanced NPC (T2b or more, and/or lymph node size > 3 cm, and/or N2 or more; AJCC Staging 1997) and negative metastases work up, have been randomized, 57 to cisplatin arm and 57 to carboplatin arm. Planned RT was 2 Gy/F to 70 Gy to the primary tumor, with 50 to 66 Gy to the node negative and to node positive, respectively in both groups. All patients characteristics were well balanced in both arms. All the eligible patients were evaluated for toxicity, DFS, and OS according to the intention-to-treat principle.

**Results:** With a median follow up of 12.6 months (range, 2 to 36.4 months). The compliance rates were 96% VS 93% for concurrent cisplatin arm and concurrent carboplatin respectively. The compliance rates were 72% VS 81% for adjuvant cisplatin and adjuvant carboplatin respectively. No treatment related death occurred. There were significantly more renal toxicity in cisplatin group, and significantly more thrombocytopenia in carboplatin arm. Mucositis and weight loss were comparable in both arms. The 2-year DFS, and OS for the cisplatin group and the carboplatin group were 84% VS 73% (p = 0.29), and 95% VS 91% (p = 0.32) , respectively.

**Conclusion:** Our experience indicates that both regimens are well tolerated in advanced NPC patients. Although OS and DFS were not significantly different between cisplatin arm and carboplatin arm, but DFS tends to be superior in the cisplatin group.

114 POSTER

## Prognostic factors in follicular and Huerthle cell carcinoma of the thyroid gland – A multivariate survival analysis

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**Background:** The knowledge of prognostic factors is essential not only for an optimal treatment of patients with thyroid carcinoma, but also for the understanding of biological behaviour of tumors in different geographical regions. Several studies have been published about prognosis of patients with thyroid carcinoma, but only in relatively few of them follicular or Huerthle cell carcinoma were studied separately from other types of thyroid carcinoma using multivariate analysis. The aim of our retrospective study was to find out which factors were associated with survival of patients with follicular or Huerthle cell carcinoma in Slovenia, in an iodine deficient region.

**Material and methods:** A total of 1612 patients with thyroid carcinoma were seen at the Institute of Oncology Ljubljana from 1972-2002. This study was carried out in 261 patients (185 females, 76 males; age 10-89 years, median age 62 years) with follicular or Huerthle cell thyroid carcinoma treated at our Institute during this period. The data on patients' gender, age, disease history, extent of disease, morphological characteristics, mode of therapy and survival were collected. Statistical correlation between possible prognostic factors and survival was analysed by univariate and Cox's multivariate analysis.

**Results:** The 10-year survival of 261 patients was 70%. During the follow-up period of 0-28 years (median 5.25 years) 74 patients died of thyroid carcinoma. Of these, 65 patients died of distant metastases, 4 of local tumor growth, and the remaining 5 of both distant and local progression of the disease. Multivariate analysis showed that primary tumor size, distant metastases, tumor differentiation, histological tumor type, radical tumor resection and radioiodine ablation of thyroid gland were independent prognostic factors for survival. Unexpectedly, the age of patients as well as lymph node metastases were not independent prognostic factors.

**Conclusions:** The best prognosis had patients with well differentiated T1 or T2 tumors, without distant metastases, without residual tumor after resection and with radioiodine ablation of thyroid gland. Patients with Huerthle cell type carcinomas had better prognosis than those with the follicular type. The worst prognosis was found in patients with poorly differentiated T4 tumors, distant metastases, macroscopic residual tumor after surgery and without radioiodine ablation of thyroid gland.

115 POSTER

## Phase I/II dose escalation study of intensity modulated radiotherapy (IMRT) in cancer of the thyroid, larynx and hypopharynx: report of acute toxicity.

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**Background:** To determine the feasibility of IMRT delivery to patients with cancer of the thyroid, larynx and hypopharynx, evaluate both acute and late toxicity, and determine a safe level of dose escalation. This is a report of the acute toxicity observed to date.

**Methods:** Patients with thyroid cancer where external beam radiotherapy is indicated and patients with stage T2-4, N1-3, M0 squamous cell carcinoma of the larynx and hypopharynx were recruited into the study. An inverse planning technique was used and treatment, with a single-phase simultaneous boost, was delivered by dynamic IMRT. Patients with thyroid cancer received 58.8Gy in 28F to the primary tumour bed and 50Gy in 28F to the elective nodal areas. Patients with advanced laryngeal and hypopharyngeal tumours were treated with concomitant chemo- IMRT using a moderately accelerated radiotherapy regime (63Gy in 28F to the primary tumour and involved nodes and 51.8Gy in 28F to the elective nodal areas) and Cisplatin, 100mg/m2 on weeks 1 and 5. Acute toxicity was collected using the NCI CTC v.2.0 scoring system and late toxicity with the RTOG and modified LENT SOMA scoring systems.

**Results:** Ten patients have been treated to date, 6 larynx/ hypopharynx and 4 thyroid. Median follow up is 19.5 weeks (range 2-65). No grade 4 toxicity has been observed. Sixty percent of all patients developed skin toxicity grade 2 and 40% grade 3. A typical pattern of widespread erythema with dry and/or moist desquamation over the neck creases was observed. Most patients (60%) experienced dysphagia grade 2, while 30% required nasogastric or gastrostomy tube feeding. Most patients experienced mucositis and pain grades 1-2, with 30% reporting grade 3. Analysis of median toxicity over time for thyroid patients versus larynx/hypopharynx patients suggested a trend for mucositis to appear earlier and to be more severe in patients receiving concomitant chemotherapy and for dysphagia to be worse in patients with thyroid cancer.

**Conclusions:** IMRT is feasible and safe in this group of patients. Acute toxicity of chemo- IMRT using a moderately accelerated regime appears acceptable. The longer length of oesophagus irradiated may explain the degree of dysphagia observed in patients with thyroid cancer. Further follow up is required to assess late toxicity. A 7% level of dose escalation is planned to the primary and elective nodes.