

**Conclusions:** Neo-adjuvant chemotherapy followed by radical chemo-radiation does not result in significant anaemia (no grade III toxicity). Blood transfusion is more cost effective than EPO in keeping the haemoglobin concentrations above the optimum level ( $>12\text{ g/dL}$ ) during radical chemo-radiation for head and neck cancer. In addition this avoids the concerns about EPO activity as a growth factor for Head and Neck cancer cells (Henke et al 2003).

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POSTER

# **Clinical values of PET-CT compared to conventional radiologic imaging in head & neck cancer**

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**Background and Objectives:** In head & neck cancer, the conventional CT and MRI are useful methods in imaging the anatomical structures of cancer, but they have limits in estimating sensitivity and specificity of cervical lymph node metastasis. To overcome these limitation, PET-CT, an imaging technique using metabolism emitting from cancer tissues, was introduced. The purpose of our study is to evaluate the clinical values of PET-CT by comparing with conventional CT/MRI, to finding preoperative cervical metastatic cervical lymph nodes.

**Materials and Method:** Seventy patients diagnosed as head and neck cancer (laryngeal, oral cavity, oropharynx) in Inha Hospital from 2004 to 2005 were enrolled in this study. A retrospective analysis was done by medical record review. Every patients had preoperative CT/MRI and simultaneous PET-CT for staging evaluation. Every patients underwent primary tumor resection and neck dissection. Postoperative cervical lymph node pathologic results were compared with preoperative PET-CT and CT/MRI findings.

**Results:** In our study, no statistical differences of sensitivity, specificity and predictability of cervical lymph node metastasis could be found between CT/MRI and PET-CT imaging in head and neck cancer.

**Conclusion:** In our study, PET-CT had no meaningful differences from the conventional imaging methods to find metastatic cervical lymph nodes, but further studies are needed.

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# **Impact of Cisplatin potentiation by Cytarabine in the 5-FU-CDDP regimen for dismal-prognosis head and neck cancer (HNC) patients; a meta-analysis of 3 local trials involving 492 patients**

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Further to our randomized study demonstrating response and survival benefit for Cytarabine (CAR) 1,000 mg/m<sup>2</sup> potentiating Cisplatin (CDDP) in the standard 5-FU-CDDP regimen (Eur J Cancer 2002) in dismal-prognosis HNC patients (unresectable T4 N2c-3 or relapsing or metastatic) two further studies were done. One compared potentiation with CAR 500 mg/m<sup>2</sup> versus 1,000 mg/m<sup>2</sup>; the other compared the CAR 500 mg/m<sup>2</sup> with 5-FU administered as bolus versus continuous infusion (RR and OS were identical in both studies). The present report is a meta-analysis of the 3 trials with response and survival as main issues. The three studies included a total of 482 patients. Cohort 1 received the standard 5-FU-CDDP regimen (83 pts), Cohort 2 CAR-1,000-5-FU-CDDP (153 pts) and Cohort 3 CAR-500-5-FU-CDDP (246 patients). All three regimens were applied both in palliative and neoadjuvant setting, the neoadjuvant preceding radiotherapy with 70 Gy. RR and PD rates were assessed on evaluable patient basis and survival on intent-to treat basis. Statistical analysis included the chi-square test, the log-rank test, determination of the death hazard ratio and Cox regression analysis. Significance was assessed by the t-test with Bonferroni correction.

The RRs were significantly higher in CAR-potentiated Cohorts (Cohort 1 44%, Cohort 2 62%, Cohort 3 66%,  $p=0.0031$ ) and PD rates in the standard 5-FU-CDDP Cohort (Cohort 1 43%, Cohort 2 21%, Cohort 3 15%,  $p<0.001$ ). The median survival in Cohort 1 was 7 months and, in Cohorts 2 and 3, 11 months. The one- and two-year survivals were, for Cohort 1 26% and 6%, for Cohort 2 42% and 14%, and for Cohort 3 44% and 24%. The difference in survival with the log rank test was highly in the favor of both CAR-potentiated Cohorts ( $p<0.0001$ ) with the power of over 90% for  $p=0.01$ . Cox regression analysis showed that both performance status, primary tumor localization and treatment schedule were significant predictors of survival. The highest impact on survival had the administration of the CAR-potentiated regimens, with death hazard ratios of 0.58 and 0.53 (CI respectively 0.44–0.77 and 0.40–0.70) as compared to standard 5-FU-

CDDP regimen. Results in the neoadjuvant setting closely paralleled those in the whole patients group.

Potentiation of CDDP by CAR improves both RR and survival in dismal-prognosis HNC patients. The choice of the neoadjuvant regimen prior irradiation is crucial in judging its benefit impact in otherwise dismal-prognosis HNC patients.

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POSTER

# **Benzydamine for prophylaxis of radiation induced oral mucositis in head and neck cancers, double-blind clinical trial**

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**Background:** Oral mucositis is one of the most common adverse effects of radiotherapy in head and neck tumors. We determined the efficacy of oral rinse benzydamine in prevention of radiation induced mucositis.

**Material and Methods:** Patients with head and neck cancers, who were referred to Cancer Institute, Imam Hospital in 2005, were enrolled in a randomized, placebo-controlled clinical trial to receive either benzydamine or placebo. All the cases received at least 50 Gy radiation to the oral cavity and oropharyngeal areas. The end points were comparison of highest grade of mucositis at the end of radiotherapy, frequency of grade 2 or more, the interval days to establishing grade 2 in the groups.

**Results:** 100 patients with head and neck cancers were randomized in this trial. At the end of the study, 19 patients were excluded of the analysis due to minor side effects of drug, or stopping the radiotherapy. In 39 cases in the treated group, the frequency of mucositis grade 3 or more was 43.6% (17 cases) in contrast to 78.6% (33 cases) in 42 cases in the placebo group, which was significant ( $p=0.001$ ). Mucositis grade 3 or more was 2.6 times frequent in placebo group (CI=95%, relative risk = 1.38–5).

At the end of RT, at least 42% of the treated group had mucositis grade 3 or more in contrast to at least 76% in the control group which was statistically significant. Intensity of mucositis was increased up to fourth week of treatment in both groups to grade 2. In the treated group the grade of mucositis was approximately constant to the end of therapy; but in the control group it rose to grade 3 ( $p<0.001$ ). The highest grade of mucositis during the treatment time was significantly different between two groups ( $p=0.049$ ).

The median interval days of establishing grade 2 mucositis was 3.6 days sooner in the placebo group ( $p=0.12$ ).

**Conclusions:** According to these results it seems that oral rinse benzydamine was effective, safe, and well tolerated for prophylactic treatment of radiation-induced oral mucositis in head and neck tumors.

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POSTER

# **Second radical irradiation in head and neck cancer patients – retrospective study**

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**Background:** Head and neck cancer patients who require reirradiation have poor prognosis because of limited possibilities of treatment, not only in recurrent cancer, but also in second primary tumors. Repetition of radiotherapy may provide better local tumor control, also when combined with surgery and chemotherapy.

**Materials and Methods:** 47 patients were included in this retrospective research. Average age was 61.9 ( $\pm 9.1$ ). 10 female and 37 male patients were treated in MSC Memorial Oncology Centre in Gliwice between 1981 and 2006 because of primary tumor in head and neck region with curative intent. 35 patients underwent surgery, 5 patients were treated with concomitant chemotherapy. First irradiations were planned in 2D (22 patients), 3D (23) or IMRT (2) techniques with average dose to PTV 60.87 Gy ( $\pm 9.01$  Gy) and average dose per fraction 1.96 Gy ( $\pm 0.21$  Gy). 28 patients had local and 13 nodal recurrences, 6 patients had second primary tumor. 32 patients underwent surgery prior to second radical radiotherapy. Six patients were dedicated to concomitant chemotherapy. Interval between first and second irradiation was 11 to 296 months. Either 3DRT (34 pts) or IMRT (12 pts) plans were prepared, one patient was treated with 2D technique. Average dose to PTV was 58.2 Gy ( $\pm 6.9$  Gy) with average dose per fraction 1.84 Gy ( $\pm 0.2$  Gy). Acute side effects were evaluated according to Diche score. All patients were followed up during and after treatment.

**Results:** Median follow up was 12 months (1–121 months). One patient finished reirradiation on lower dose due to acute side effects. Acute toxicity was in the range 3 to 14 with a median 7 points. 15 recurrences (5 nodal and 10 local) and 7 distant metastases were observed. Long-term side effects were noticed in 33 patients. 18 patients suffered from xerostomy on moderate level, 15 patients from chronic pain in previously irradiated regions and 11 patients from dysphagia. 2-years recurrence free survival was 28% and 2-years overall survival was 39%.

**Conclusions:** Radical reirradiation in head and neck cancer may be a good treatment option for patients with non-operable recurrent or second primary tumors. However, quality-of-life decreased because of long-term side effects such as xerostomy or dysphagia.

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POSTER

#### Role of external radiotherapy in locally advanced carcinoma thyroid

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**Aim:** The aim is to study the incidence of distant metastasis in locally advanced carcinoma thyroid and to see the effectiveness of iodine ablation in residual disease.

**Materials and Methods:** Retrospective analysis of 1558 patients with carcinoma thyroid from 1965 to 2005 were included. Total number of patients were 124 [8%], males with >40 were 27 (21%). Female >45 were 46 (37%). 60% of the patients were fallen in T2 stage (i.e. <5 cm). Papillary 88 [71%], follicular 26 (21%), medullary 7 (17%), lymph node metastasis and total thyroidectomy in 105 [84%], tracheotomy 4 [3%].

**Results:** Lung metastases 9 [7%] majority of them were papillary, bone in 7 [5.6%] majority were follicular. All the patients received external radiation to the neck as most of the tumor were adherent to the esophagus and carotid sheath, with an average dose of 50 Gy, ranging from 30–60 Gy. Radiotherapy was given to 6 with spine and one each with pelvis and rib to alleviate pain. All the patients received iodine ablation except three iodine ablation was initiated after a gap of three weeks after the radiotherapy. All the patients except 2 had received 90 µI which was the dose required to make the subsequent scan negative which was even in early thyroid cancers.

There was no significant association between the survival and the size of the tumor. The average follow up was 3.6 years. Among both the sexes there was no association between the size of the tumor and nodal or distant metastasis to bones or lungs. Average follow up period in follicular and papillary carcinomas with distant metastasis were 3.1 years. Mortality was 7% at an average of 3 year follow up period.

**Conclusions:** External RT has definite role in locally advanced carcinoma thyroid. The nodal metastasis incidence is more, and the incidence of distant metastasis is not significantly increased than the early carcinoma thyroid group except the bone metastasis. The mortality rate at three year period is more

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POSTER

#### Retrospective study of 468 patients in Morocco with nasopharyngeal carcinoma

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**Background:** Nasopharyngeal carcinoma (NPC) is a distinct form of cancer of the upper respiratory or digestive tract in which the epidemiologic features, origin, histopathologic types, treatment, and prognosis are different from those associated with other malignant neoplasms of this anatomical area.

**Materials and Methods:** Between January 1, 1999, and December 31, 2001, 468 patients with newly diagnosed NPC were treated at National Institute of Oncology. Clinical records and radiographic studies of the patients were retrospectively reviewed. Documented data of the initial presenting symptoms, head and neck examination, radiotherapy protocols, chemotherapy regimens were analyzed.

**Results:** 468 pts with histologically confirmed NPC were enrolled: 337 males, 131 females; median age was 42 years (range 10 to 83); delay of consultation was 8 months (range 1 to 60), histology subtype UCNT in 405 pts (86, 5%); 380 (81%) were stage T3 T4; 319 (68%) N2N3 and 42 pts (9%) M1. The therapeutic modalities were: neoadjuvant chemotherapy (CT) + radiotherapy (RT) (76%), RT alone (14%), CT alone (9%), concurrent chemoradiotherapy (1%). CT consisted in cisplatin (P)-based schedules: P-Epirubicine (41%), P-Doxorubicine (26%), P-5-FU (8%), and BEC (3%). With a median follow-up of 26 months (3–74) 128 pts (27, 4%) are alive and free of disease. The 5-year survival rate was 26, 6% (95% confidence interval [CI], 22, 1%-29, 9%).

**Conclusion:** Major challenges in the treatment of NPC, particularly in its advanced stages, are how to improve locoregional control and prevent the development of distant metastases. Recent publications have demonstrated the advantage of concurrent chemoradiotherapy over radiotherapy alone in the treatment of NPC.

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POSTER

#### Prognostic factors in advanced laryngeal cancer

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**Background:** Laryngeal Cancer is the sixth leading cancer in Indian males, while its optimal treatment is still evolving. To clarify the factors affecting the outcome of laryngeal cancers, we retrospectively analysed the cases of advanced laryngeal cancers treated at the regional cancer center at Chennai between 1980 and 2000.

**Materials and Methods:** Between 1980 and 2000, 998 cases of carcinoma larynx were taken up for treatment. Out of which 520 were locally advanced disease. Up to 1996, Radiation was the primary mode of treatment and surgery was reserved for salvage. From 1997, surgery was the primary mode of treatment, with radiation used as adjuvant. Follow up period ranged from 4 to 20 years. The factors which were analyzed included age, sex, tobacco & alcohol habit, grade of the lesion, Tumor status, nodal status, tumor subsite, treatment modality, resection margin, soft tissue invasion, cartilage destruction. Survival analysis was computed with Kaplan-Meier method, while Cox proportional hazard model used for multivariate analysis of prognostic factors, SPS system used for data analysis.

**Results:** 416 patients had primary radiation therapy, in which 133 (31.9%) had durable complete remission, while 35% (60/168) of the residues were salvaged and 26.9% (31/115) of late recurrences could be salvaged. Of the 104 patients who had primary surgery, 79 had post operative radiation. 25 cases had locoregional recurrences. 5 year survival for patients with primary radiation group was 33.3%, while that for primary surgery was 63.3%. By univariate analysis, (1) age >65 years, (2) treatment modality-primary surgery group, (3) nodal status >3 cm, (4) soft tissue invasion proved to be significant, while by multivariate analysis (1) treatment modality – primary surgery with adjuvant radiation, (2) tumor status, (3) nodal status (size >3 cm) significantly influenced the survival.

**Conclusion:** In this analysis, attempt made to look into the factors influencing the survival in laryngeal cancers showed that tumor status, nodal status, primary treatment modality were found to be independent factors influencing the survival, with treatment modality with surgery & adjuvant radiation proved to be the most influencing factor.

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#### Organ preservation in patients with laryngeal and hypopharyngeal cancer treated with definitive radiotherapy over the last 10 years in Gliwice experience

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**Background:** To review the experience in the definitive radiotherapy (RT) of laryngeal and hypopharyngeal cancer and to evaluate its efficacy in the relation to larynx preservation.

**Materials and Methods:** Records of 330 patients with laryngeal and hypopharyngeal cancer treated with definitive radiotherapy between years 1994 and 2003 were reviewed. There were 279 men and 51 women with a median age of 59 years (range, 35–84 years). The primary site was glottic in 115, supraglottic in 188, and hypopharynx in 27 patients. Fifty eight patients had I clinical stage of disease, 95, 111 and 66 patients had respectively II, III and IV clinical stage of disease. All patients had been treated with definitive radiotherapy alone. Locoregional control (LRC), organ preserved LRC and ultimate LRC was estimated using the Kaplan-Meier method. The ratio of surgical salvage was estimated.

**Results:** Five-year LRC was 90%, 78%, 59%, 48% respectively for disease stages I, II, III and IV. Five-year larynx preservation LRC was 93%, 73%, 55%, and 42% respectively for disease stages I, II, III and IV. Five-year ultimate LRC was 97%, 83%, 65% and 50% respectively for disease stages I, II, III and IV. In 42 (12.7%) cases surgical intervention (tracheostomy or laryngectomy) was carried out. In 15 cases (4.5%) due to mucosal oedema and dyspnoe after RT and in 27 (8%) cases salvage surgery for locoregional failure were performed. Salvage surgery was efficient in 12 patients (46%).

**Conclusions:** Definitive RT is a good treatment option for early laryngeal and hypopharyngeal cancer and could be also considered in advanced cases. In that group RT allows to spare larynx in nearly half of the patients.