

Results: The data confirmed that basal cells of normal buccal mucosa showed high levels of Class I, II, & EGFR expression. In OSCC a significant minority showed loss of class I antigens and this deficiency was more evident for the polymorphic antigens. Most OSCC cases showed overexpression of EGFR and >50% were positive for class II antigens. In all class II antigen positive cases there was a high degree of T cell infiltration.

Parallel studies in >45 ameloblastomas demonstrated that; a) loss of class I antigens was equal or higher than in OSCC, b) the expression of EGFR was detected only in a small number of cases, and c) in no case was high T cell infiltration or class II expression found.

Conclusion: These data clearly confirmed that at least two important signals were necessary for aggressive growth of the heterogenous malignant cells of OSCC or salivary malignancy as compared with the benign cell variants found in ameloblastoma. The malignancy appeared to have the capacity to escape the immune detection mechanisms whilst at the same time gaining self-perpetuating potential (as demonstrated by overexpression of EGFR). In conclusion the data suggested that the screening of cell surface molecules by Mabs could assist clinical managements.

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POSTER

Treatment outcome in patients (pts) with loco-regional relapse (LRR) of undifferentiated carcinoma of nasopharyngeal type (UCNT)

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Between 03/87 and 12/95, 51 pts were treated for LRR of UCNT at IGR. Pts characteristics: M 37/F 14, median age 51 years [21–72], nodal staging of initial disease (ID) (UICC 1987): N0 13%, N1 10%, N2a 13%, N2b 18%, N2c 23%, N3 23%, 100% M0. ID was treated by radiotherapy (RT) 16 pts, associated to cisplatin-epirubicin based chemotherapy (CT) 34 pts; median delay between LRR and ID: 22 months (mts) [7–120]; site of relapse: nasopharynx 21 pts, with nodal involvement 16 pts, nodal alone 14 pts. Treatment according to LRR stage included: RT alone (13 pts), CT alone (11 pts), RT + CT (27 pts) with the same epirubicin-cisplatin based CT. With a median follow-up of 39 mts [2–120], median survival is 30 mts and evolution marked by metastatic spread in 25% of pts at 2 years. There was 13 long term surviving pts (>36 mts). Site of relapse, delay between ID and LRR, and status of nodal ID did not influence prognosis. LRR of UCNT can be controlled by RT+CT with some success. Lack of control with metastatic involvement could explain the poor prognosis.

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POSTER

Proliferation rate as a predictor on nasopharyngeal cancer radiation response

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Background: Irradiation is still the treatment of choice in NPC treatment. Up to now there is no accurate predictor on radiation response, since that the similar histo-morphological pattern, as a well known prognostic factor can revealed a wide range of treatment outcomes. Cellular tumor behaviour such as proliferation activity is proposed to influence the radiation response since that the G2 and M phases are the most radiosensitive cells.

Purpose: to find out the role of proliferation rate and other clinical factors in NPC as a predictor of radiation response.

Materials and Methods: Clinical stage and radiation response were collected from 116 patients. The proliferation rate from those patients were obtained flow-cytometrically (S-phase fraction). The radiation response were established clinically (nasopharyngoscopy), CT scanning and pathologically.

Results: The range of the patients age is 15–70 year, and 70% of the patients consist of male. The SPF mean was $14.62 \pm 10.18\%$, and 65% of our patients were T3 and T4, whereby the N2-3 group consist with 75% of them. Fourteen percents of the patients were Hsu type I, 48% were Hsu type II and the rest are belong to Hsu type III. There is a significant correlation between the proliferation value with the radiation response ($p = 0.001$). The complete and incomplete radiation response group of patients has the SPF mean value of $11.3\% \pm 9\%$ and $18.5\% \pm 11.7\%$ respectively ($P = 0.001$, OR = 1.07), with cut off level at the SPF 11%. There were 61%

of cases with SPF < 11% revealed complete irradiation response versus 39% with partial response. On the other hand there were 32% of patients revealed complete radiation response versus 68% with partial response ($p = 0.01$, OR = 5.5). There is no correlation between the proliferation rate and the radiation response with the histology pattern of NPC. Multivariate analysis (SPF, histological pattern, tumor and nodal size) shown that only SPF has a role to influence the radiation response ($p = 0.02$).

Conclusions: SPF as one of the proliferation rate parameter can be used as a radiation response predictor of NPC. It is assumed that the patients with high proliferation rate should be irradiated with the unconventional irradiation scheme such as hyperfractionated irradiation, or combined with other modality that will enhanced the radiation effect, since that the proliferation is to fast for once a day irradiation scheme.

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POSTER

Influence of haemoglobin on radiotherapy of head and neck cancers

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Purpose: The role of haemoglobin (Hb) level prior to radiotherapy was examined in 3 groups of patients with head and neck cancers. The role of Hb with regard to response to therapy and survival was evaluated.

Patients and Methods: Patients with laryngeal cancer treated by conventionally fractionated radiotherapy (CF) from 1972–1990 (N = 327), patients with oral cavity or oropharyngeal cancers treated by preoperative radio (CF)-chemotherapy (MMC + 5-FU) from 1985–1989 (N = 96) and patients with CF vs. accelerated hyperfractionation (V-CHART) with or without chemotherapy (mitomycin C) treated in a randomised trial from 1990–1997 were evaluated with regard to treatment response and survival in relation to their initial Hb level.

Results: The results indicate that Hb level influences both response rates and survival in patients treated by conventional fractionation (Larynx $p = 0.02$, CF-arm (study) $p = 0.03$). Hb influences response rates after radio (CF)-chemotherapy ($p < 0.005$), but not survival. After V-CHART the role of Hb is almost statistically significant at $p = 0.07$ for response and significant for survival ($p = 0.016$). In the trial arm V-CHART + MMC the influence of Hb was neither seen for response ($p = 0.8$) nor for survival ($p = 0.7$).

Conclusion: The role of Hb plays an important role in response and survival of patients undergoing radiotherapy as single modality therapy and radio-chemotherapy when radiotherapy is given as conventional fractionation. There is no influence of Hb when a very short fractionation schedule is applied together with MMC, a bioreductive drug with preferential toxicity in hypoxic tumour cells. This underlines the importance of tumour hypoxia as a major factor for tumour recurrence and the necessity to find ways to improve tumour oxygenation and development of regimens with chemotherapeutic drugs with specific toxicities.

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POSTER

Poor prognosis was found in nasopharyngeal cancer patients with low glucose-6-phosphate-dehydrogenase

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Nasopharyngeal carcinoma (NPC) is a tumor of endemic distribution among well-defined ethnic groups, prevalent in several world regions. Southeastern China and Taiwan have the highest incidence (about 30 per 100,000 persons per year). Glucose-6-phosphate-dehydrogenase (G6PD) deficiency, a sex-linked disorder, is one of the most common enzymopathies in Taiwan. The major role of G6PD is to generate NADPH to protect cells from oxidative damage and to reduce the risk of certain degenerative disease, such as aging and cancer. With such a high coincidence of epidemic distribution of NPC and G6PD deficiency, as well as the house-keeping function of G6PD in cellular oxidative defense, we investigate the correlation of G6PD activity with NPC. The stage of NPC was classified by ACJJ (1997) criteria. G6PD levels were determined in 117 consequent NPC male patients. The mean G6PD level was 7.53 U/gHb (with standard deviation of 2.32 U/gHb), that was much lower than normal individuals (normal ranging 8–18 U/gHb). In addition, 19.5% of NPC patients has low G6PD activity (<6.4 U/gHb); 11.1% of NPC patients has very low G6PD activity (<5 U/gHb), which was higher frequency than population in Taiwan (~4%). The level of G6PD activity had no correlation with tumor stage or lymph node metastasis, but was significantly correlated with treatment failure (recurrence and/or distant metastasis) (30% vs 15.8% of treatment failure cases in G6PD level less

vs greater than 6.4 U/gHb). These results indicated that G6PD-abnormal or -deficient individual may predispose NPC, and may be resulted in poor prognosis. The underlying mechanisms of low G6PD patients more susceptible to oxidative damage, and of the effects to radiotherapy will be further delineated.

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POSTER

Temporal relationship between serologic Epstein-Barr (EB) viral antibodies and treatment outcome in nasopharyngeal carcinoma

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Purpose: Literature has reported the importance of anti-EB viral capsid & early antigen (VCA&EA) antibodies as tumor markers of NPC. There are, however, controversial points with respect to clinical significance of anti-EB VCA immunoglobulin A, G (IgA, G) and anti-EBEA titers in the serum. In a prospective study the value of these antibodies in predicting the prognosis of NPC was evaluated.

Methods: One hundred and sixty two irradiated non-metastatic patients were recruited between 1994 & 1996. Indirect immunofluorescent assay of antibody was applied on serum samples collected before & after RT & every 3 months in the following 2 years.

Results: Patients with undifferentiated carcinoma or neck node of greater than 6 cm yield significantly higher level of mean pre-RT anti-EBEA antibody than patients with non-keratinizing carcinoma ($P = 0.0386$) or neck node of ≤ 3 cm ($P = 0.0099$) while post-RT serologic level of VCA IgA remained to be the only independent anti-EB factor in predicting complete remission rate (>160 VS ≤ 160 , odds ratio = 3.91, $P = 0.008$). Two year recurrence free survival rates were relatively high in patients with low (≤ 160) anti-EBEA titers measured at 3.6 and 12 months post-RT ($p = 0.0002$, 0.0337 & 0.0001 respectively).

Conclusion: Post-RT anti-EBVCA IgA level correlated well to treatment response while anti-EBEA antibodies before RT and during follow up period may help in predicting nodal status, pathologic types & 2 year recurrence free rates.

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POSTER

Clinical relevance of urokinase-type plasminogen activator (uPA) and its inhibitor PAI-1 in oral squamous cell carcinoma (OSCC)

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Purpose: Invasion and metastasis in solid, malignant tumors require tumor associated proteases to dissolve the surrounding tumor matrix and the basement membranes. The serine protease uPA and its inhibitor PAI-1 play a key role in these processes. Several independent studies on different kinds of cancer (e. g. breast, ovary, kidney) prove the prognostic value of uPA and PAI-1. Elevated levels of uPA and/or PAI-1 predict poor outcome of cancer patients. For oral squamous cell carcinoma, however, the possible prognostic relevance of tumor-associated proteolytic factors to the malignant process has still to be evaluated.

Methods: In the present study we used enzyme-linked immunosorbent assays (ELISA) to determine uPA and PAI-1 antigen concentrations in primary tumor tissues of 47 patients afflicted by oral squamous cell carcinoma.

Results: Patients with either high PAI-1 (<27.61 ng/mg protein) or uPA (5.41 ng/mg protein) contents in their primary tumors have an increased risk of relapse (uPA: $p = 0.02$; PAI-1: $p = 0.006$). Patients whose primary tumors have lower levels of these antigens have a lower risk than patients with high uPAI-1 and PAI-1 concentrations. Statistical analysis revealed uPA and PAI-1 to be independent from classical morphohistological prognostic factors.

Conclusion: In OSCC uPA and PAI-1 are strong and independent prognostic factors which allow us to identify high risk patients. Both uPA and PAI-1 might help us to improve the individual oncological therapy. uPA and PAI-1 could become new targets in cancer therapy.

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POSTER

Causes of interruption of radiotherapy in nasopharyngeal carcinoma patients

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Purpose: In the past few decades, NPC researches have primarily focused on diagnosis and treatment while few studies have assessed why some patients fail to complete the recommended full-course radiotherapy. This study is to explore the factors involved in patient's decision to discontinue treatment and the outcome.

Materials and Methods: A total of 3,273 nasopharyngeal carcinoma patients were treated in a span of 18 years from 1979 to 1996. Of these, 276 did not complete the full-course treatment of radiation therapy. The medical records of these patients were studied to determine the contributing factors for treatment interruption.

Results: Of the 276 patients whose treatment were interrupted, 120 (43.5%) were unable to endure the acute side effects of radiation therapy and afraid of possible complications from the treatment; 57 (20.7%) had doubt on the diagnosis or had the subjective perception that the treatment will be ineffective in view of the severity of their disease; 50 (18.1%) resorted to folk prescriptions; 17 (6.2%) were due to the socioeconomic problems; 15 (5.4%) reverted to have treatment in other hospitals for transportation consideration. Five-year survival rate on these patients was 10%, with median survival of 1.2 years.

Conclusions: This finding suggests that more attention should be paid to providing care with regard to side effects of the procedure and to reinforcing pre-treatment education. Given the fact that poor prognosis in these patients, clinicians, working together with medical staff as a team, should provide patients with adequate support so that their pressures to cope with the social, economical, psychological and educational aspects of NPC will not be obstacles to the completion of radiotherapy.

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POSTER

The role of definitive radiation therapy for larynx preservation in patients with advanced laryngeal cancer

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Background and Purpose: Recently, neoadjuvant chemotherapy (CT) and radiation therapy (RT) have been advocated as a standard treatment for laryngeal preservation in patients with locally advanced laryngeal cancer. However, it is still being debated whether adding neoadjuvant CT to conventional RT makes an effective contribution to laryngeal preservation. The current study was designed to resolve this controversy.

Materials and Methods: Eighty patients (stages III, IV) with squamous cell carcinoma of the larynx were divided into two groups according to treatment modalities, which consisted of RT alone ($N = 40$, Group I) and neoadjuvant CT plus RT ($N = 40$, Group II). Comparative analysis was undertaken in order to investigate the differences in the organ preservation rate and treatment results between the two groups.

Results: There was no significant difference in the response rate and patterns of treatment failure between the two groups. The five-year survival rate was similar between Group I (24%) and Group II (31%) ($P = 0.1556$). In addition, the larynx was almost equally preserved in Group I (62%) vs. Group II (63%).

Conclusion: RT without neoadjuvant CT seems to be a valid alternative treatment for the purpose of laryngeal preservation in locally advanced laryngeal cancer.

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POSTER

Impact of radical or non-radical surgery combined with postoperative radiotherapy of the oral cavity cancer on treatment outcome

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Purpose: To evaluate relationship between degree of macro – and/or microscopic radical or non-radical surgery and postoperative radiotherapy on treatment outcome of the patients with oral cavity cancer.