849 POSTER

Detection of cell surface sialylation of head and neck carcinomas by a new histobiochemical method

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Purpose: The sialoglycans and the degree of sialylation on the cell surface are of increasing interest because of the possible contribution to metastasis and invasion. Primary tumors and metastasis may differ in the degree of sialylation.

Methods: Cell surface sialylation of 30 lymph node metastases and 30 squamous cell carcinomas of the head and neck was determined by a new histobiochemical assay on cryostat sections which is based on the enzymatic introduction of a fluorescence-labelled sialic acid (CMP-9-fluoresceinyl-NeuAc) into lactosaminyl type (Gal β 1–4 GlcNAc) oligosaccharide chains of cell surface glycoproteins by α-2,6-sialyltransferase. To compare degree of sialylation with the total amount of sialylation sites a pretreatment with sialidase for desialylation was required.

Results: We observed a significant ($p = 0.001$) higher amount of lactosaminyl type binding sites for sialic acid on metastases compared to the primary tumors. Pretreatment with sialidase could detect a significant amount of sialylation on primaries and metastases, showing a lower degree of sialylation in metastases. In primary tumors no correlation was seen between the amount of binding sites and tumor localization, TNM-stage or histological grading of the tumors.

Conclusion: A higher degree of sialic acid free lactosaminyl glycans on the cell surface of head and neck tumors seems to be correlated with the occurrence of metastasis. Our new histobiochemical method turned out to be effective, reliable and little laborious.

850 POSTER

Complications rate following neutron or mixed beam irradiation for patients with head and neck malignancies

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Purpose: to review the incidence of complications following neutron irradiation for patients with malignancies of the head and neck region.

Materials and Methods: retrospective review identified 30 patients with malignancies of the head and neck region who received a minimum neutron radiation dose of 1000 NcGy. Neutron beam is produced by 48.5 MeV neutron → Be reaction. Twenty-one patients were treated by neutron irradiation alone and received a median dose of 2040 NcGy (range 1700–2040 NcGy) delivered at a median fraction size of 170 NcGy (range 100–170N cGy). Nine patients received mixed neutron and photon irradiation with median doses of 1050 NcGy (range: 1020–1360 NcGy) and 1980 cGy (range 1280–3400 cGy). Seven patients had undergone radical surgical resection of their tumor prior to the initiation of radiation therapy. Eight patients received concurrent cisplatinum systemic chemotherapy during the radiation therapy course. Patients were followed for a median period of 20 months (range 5–61 months).

Results: The two year actuarial incidence of grade 3–5 complications for the entire group is 66%. Patients who received neutron irradiation alone, or mixed beam irradiation have a complication rate of 75% and 20% respectively. Concurrent chemotherapy and neutron irradiation was associated with a very high actuarial complication rate of 86% at two years. The corresponding crude complication rates are 40%, 52%, 11%, and 86%.

Conclusion: Neutron irradiation using similar beam energy and the dose fractionation regimen described above results in unacceptable high complication rate. This is particularly true if concurrent cisplatinum is used.

851 POSTER

Preliminary results of a randomised study using WR-2721 in radiation therapy alone in patients with head and neck cancer

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Purpose: Based on experimental and clinical evidence of radioprotection of salivary glands using WR-2721 we started the prospective randomized study to verify these results.

Methods and Materials: Patients undergoing radiation therapy alone for carcinoma of the head and neck region were eligible, if minimal 75% of each parotid was in the treatment fields. WR-2721 (200 mg/m^2) was administred prior to each irradiation. Assessment of adverse radiation reactions were performed. 22 patient were enrolled on the study in University Erlangen-Nürnberg up to 15.2.97.

Results: Administration of WR-2721 prior to each radiation dose was unproblematic. Radiation mucositis and dermatitis were equal in both treatment arms. The values of flow rates for whole saliva, stimulated parotid saliva and the excretion percentage of the parotid gland decreased markedly at 1–5 months posttherapy in both arms and we noted a residual function of parotid glands in the WR-2721 arm only.

Conclusions: Administration of WR-2721 at 200 mg/m^2 daily prior to irradiation was feasible without any relevant toxicity. In the first months after radiation therapy a residual function of salivary glands in the WR-2721 arm only were found.

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Selective cytoprotection by amifostine (A) in the treatment of head and neck cancer with simultaneous radiochemotherapy (RCT)

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Purpose: A randomised study was conducted to evaluate the protective activity of A against the dose limiting toxicities of RCT.

Methods: Patients with head and neck cancer received radiotherapy (2 Gy/day 5 days a week to 60 Gy) with carboplatin 70 mg/m^2 on days 1–5 and 21–25 inclusive. Patients either received RCT alone ($n = 14$) or RCT and A at a dose of 500 mg prior to treatment with carboplatin ($n = 25$).

Results: There was a significant reduction in the incidence of grade 3/4 mucositis ($p < 0.0001$), acute grade 2 xerostomia ($p < 0.0001$) and grade 3/4 thrombocytopenia ($p = 0.012$) in those patients who received A. The incidence of grade 2 late xerostomia at 12 months is 16.7% and loss of taste is 0% in those patients treated with A compared to 54.5% and 63.6% in those patients who received RCT alone. There were 18 (72%) complete responses (CR) and 6 (24%) partial responses (PR) seen in patients who received A compared with 6 (43%) CR and 6 PR (43%) seen in patients treated with RCT alone. The disease free survival at 12 months is 85.7% in RCT + A arm and 78.6% in the RCT alone arm.

Conclusion: The use of A reduces the incidence and severity of acute and late toxicities associated with RCT whilst preserving anti-tumour activity.

853 POSTER

Neoadyuvant chemotherapy with cisplatin (CDDP) plus 5-FU vs. cisplatin plus UFT in locally-advanced squamous head and neck cancer

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Purpose: In this study, the activity of Al-Sarraf scheme 5-FU+CDDP has been compared with the combination UFT + CDDP in neoadyuvant treatment of locally advanced head and neck cancer. Toxicity differences between the two schemes were also studied.

Methods: 67 patients with locally advanced head and neck cancer were distributed in a random manner into two groups. The first group received CDDP (100 mg/m2) on day 1, followed by a continous infusion of 5-FU (1.000 mg/m2/d) on days 2–6. The second group received CDDP (100 mg/m2) on day 1, followed by oral administration of UFT (300 mg/m2/d) on days 2–20. Both treatments were started every 21 days and repeated 4 times. Responding patients received locoregional standard radiotherapy (50–70 Gy) after chemotherapy. The patient's characteristics were: *Group 1:* 34 pat. Sex: M/F: 30/4, Median age: 57.5 y.; P.S.: 90–100: 79.4%; 70–80: 20.6%. Histology: Squamous: 70.5%, Undiferentiated: 29.5%; Stage: III: 14.7%; IV (MO): 85.3%. *Group 2:* 33 pat. Sex: M/F: 29/4; Median age: 56 y.; P.S.: 90–100: 87.8%; 70–80: 12.2%. Histology: Squamous: 81.8%; Undiferentiated: 18.2%. Stage: III: 12.2%; IV (MO): 87.8%.

Results: In the first group the response rate was 73.5% (CR: 20.6%; PR: 52.9%) and in the second group the response rate was 81.2% (CR: 18.7%; PR: 62.5%). With a median follow up of 84 months, no significant differences