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Initial levels of the plasma β2 microglobulin in patients with different histological types of non-Hodgkin lymphoma

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Concentrations of β2 microglobulin (β2 M) have been determined in five groups of patients (pts) suffering from malignant diseases with the aim to establish the frequency and levels of its increase. β2 M has been determined by using the ELISA technique. It has been investigated in 28 healthy donors, two groups of pts with non-haematopoetic malignancies (UCNT, bouth Kaposi sarcoma or angiosarcoma) and haematopoetic malignancies (non-Hodgkin lymphoma – NHL, myeloma multiplex and Hodgkin lymphoma-NHL). The highest frequency of elevated levels was found in the myeloma group (83.3%) and the Kaposi/angiosarcoma group (84.69%). β2 M was elevated in 64.7% pts with HL and in 45.7% pts with NHL. There was no increase of the β2 M in the UCNT group. Further analysis of the data from the NHL group revealed that the β2 M was elevated in 66.7% pts with small lymphocyte NHL, WF (in 87.8% pts with HLL, 61.6% pts with lymphocytic lymphoma and 50% pts with lymphoplasmocytic NHL), with statistically significant difference if compared to healthy donors ($p < 0.00001$). In pts with diffuse centrocytic NHL β2 M was elevated in 75% cases, with the slightly smaller statistical difference than in the previous group ($p = 0.0014$). β2 M was elevated in only 25.9% pts with diffuse large cells NHL (in 19.1% centroblastic NHL and 28.5% immunoblastic NHL); it appears that the frequency and level of increase depend on the clinical stage of the disease. The β2 M level can be used as one of the parameters for the differential diagnosis of UCNT and NHL. Our results suggest that it can be more useful parameter in the follow-up of low-grade than in high-grade lymphomas. The substantially increased β2 M in the Kaposi/angiosarcoma group is a interesting result.

Nervous system tumours

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Prognostic subgroups in patients with brain metastases: An analysis of a database containing 1292 patients

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Purpose: A retrospective analysis of 1292 patients with brain metastases was performed in order to determine prognostic subgroups for future clinical trials.

Methods: Between 1981–90, 1292 patients with CT-diagnosed brain metastases were referred to the UHR. Of these, 84% were treated with whole brain radiotherapy (RT) and the remainder with steroids only or surgery plus RT. A number of potential prognostic factors e.g. performance, number of metastases, site of primary, systemic tumor activity, serum LDH, treatment modality and response to steroids, were investigated by uni- and multivariate analysis.

Results: Overall median survival (MS) was 3.4 months (mo); 6 mo, 1 year and 2 year-survival rates were 36%, 12% and 4%, respectively. A significant difference in MS was seen between treatment with steroids only (1.3 mo), RT (3.6 mo) and surgery plus RT (8.9 mo) (multivariate, $p < 0.001$). In RT patients, performance, response to steroids, systemic tumor activity and serum LDH had the greatest impact on survival. The best prognosis was seen in the group with performance WHO 0–1, a good response to steroids and no or limited systemic tumor activity (MS 6.3 mo). The poorest prognosis was seen with WHO 2–3, little or no response to steroids, and limited or extensive systemic tumor activity (MS 1.3 mo). An intermediate prognostic group had MS of 3.4 mo.

Conclusions: This large database of patients with brain metastases has identified readily available prognostic factors which can be used for stratification in future clinical trials.

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Expression of tumor suppressor gene p27 in high grade astrocytomas correlates with survival

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Purpose: Two families of tumor suppressor genes (p15/p16/p18 and p21/p27) regulate cell proliferation and neoplastic transformation of astrocytes. We correlate expression of the p21 and p27 with survival in malignant astrocytic tumors.

Methods: p27 and p21 were immunohistochemically assessed in 52 glioblastomas (GB, mean age 54) and 25 anaplastic astrocytomas (AA, mean age 47). All patients were operated for the first time and postoperatively they were treated with radiotherapy (mean 55 Gy in 1.8 Gy daily doses).

Results: The percentage of p27 positive cells (p27 LI) was <30% in 36%, 30–50% in 25% and >50% in 39% of all 77 tumors. In cumulative survival there was a significant difference between these groups ($p = 0.007$, Log-rank test). In multivariate analysis p27 LI was an independent prognostic factor ($p = 0.0007$). p21 LI was <30% in 48%, 30–50% in 39% and >50% in 13% of all tumors; these groups did not differ in survival.

Conclusions: p27 exerts its suppressor effect through cyclin E dependent kinase CDK2, by inhibiting the phosphorylation of pRb by CDK2 which in turn arrests cells in G1 phase. p21 has similar effect in addition to participating in p53 dependent CDK4 and CDK6 mediated pathway. No mutations are known in p21 and p27 genes in malignant tumors. The decreased levels of p27 and p21 appear to depend on their increased degradation. Our study showed that although p27 and p21 are parallel cell cycle regulators only p27 is an independent prognostic factor.

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Somatostatin receptor scintigraphy in endocranial tumours and comparative dual isotope study. Tissue characterisation?

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Purpose: We sought to evaluate the 111In labelled somatostatin analogue, octreotide (OC) for in vivo scintigraphy of endocranial tumours. A dual isotope study was conducted in the same patients using 201Tl Cl3 (TL). We then compared the Tumour/Non-Tumour ratios (Ô/ÍÔ) of these two radiopharmaceuticals in relation to the tumour type.

Materials-Method: We studied 68 patients, (males/females = 41/27), aged 50*31 with space occupying endocranial lesions. All patients had findings in previous CÔ and/or MRI. Scintigraphy was performed 6*1 hrs after the IV administration of 2.2–3 mCi 111In-DTPA-octreotide. In 36 patients scintigraphy was also performed at 24-hrs p.i. and SPECT images were acquired in 5 cases. Scintigraphic data was compared to the CÔ/MRI findings. Patients were operated upon within 48 hrs and subsequent tumour histology was performed in all but 1 patient (a papillary ependymoma, treated by radiotherapy). In total, we studied 18 meningiomas, 27 gliomas, 6 pituitary adenomas, 1 ependymoma, 6 neurinomas, 4 metastatic lesions, and 1 primary lymphoma. Dual isotope scans were performed in 20/68 patients.

Results: Positive preoperative imaging was observed in 62/68, negative in 4/68 and dubious in 2/68: 17/18 meningiomas, 6/6 pituitary adenomas and 5/6 neurinomas. 24/27 gliomas, were true positive and 3 were false negative. All 4 metastatic lesions were positive. The ependymoma was negative. Quantitative analysis of the Ô/ÍÔ ratios was able to differentiate the meningiomas with significant accuracy, (OC/TL) Ô/ÍÔ = 7.84/4.32. Smaller differences were observed in the other tumour types. Regarding the gliomas, we observed the ÏC/TL ratio to have a negative relationship to the histologic grading with the higher grade gliomas having a lower ratio.

Conclusions: Somatostatin receptor scintigraphy appears to be useful for non-invasive differential diagnosis of endocranial tumours and presenting with possibilities of tissue characterisation in the case of meningiomas while also providing significant imaging capabilities of other space occupying brain lesions.