P O-21

Cyclins and CDKs in oligodendroglioma progression

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Objectives: Cyclins and their CDks regulate the cell cycle. In many malignancies cyclin D1 overexpression was assumed as responsible for cell cycle deregulation. In gliomas few observations are available. The purpose of this study is to verify the role played by cyclins D1, E, A and B1 and their kinases in the progression to malignancy in oligodendrogliomas.

Material and Methods: on formalin fixed and paraffin embedded surgical specimens of a series of 10 grade II and 10 grade III oligodendrogliomas, cyclin D1, E, A and B1 and CDK4, 6, 2 and cdc2 have been investigated immunohistochemically and by western blotting using polyclonal antibodies and compared with Ki.67 clone MIB.1 LI.

Results: Cyclin D1, A, B1 and, less, cyclin E increased with anaplasia parallelling MIB.1 LI, in relation with the number of cycling cells. CDK4 was diffusely and cdc2 variably positive. Normal oligodendrocytes were positive for cyclin D1.

Conclusions: positivity of cyclins, transiently expressed after mitogenic stimulation, marks the progression through G1-S and G2-M transition, corresponding to the number of cycling cells. The variable positivity of kinases corresponds to their manifold control by cyclins, phosphorylation and dephosphorylation and CDK inhibitors, mainly p27/Kip 1 which is known to decrease with anaplasia in oligodendrogliomas. Challenging is the interpretation of cyclin D1 positivity of normal oligodendrocytes.

P O-22

p53 protein expression in recurrent astrocytomas

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Objectives: To analyse p53 protein expression in recurrent astrocytomas.

Materials and methods: Clinical and histological parameters were evaluated in 56 cases of recurrent astrocytomas (29 diffuse astrocytomas, 10 anaplastic astrocytomas,14 glioblastomas). Immunostaining for p53 protein was done on both initial and recurrent tumours and p53 labelling index estimated

Results: Malignant progression at recurrence was noted in 93.3% of diffuse and 63.6% of anaplastic astrocytomas.56.25%(27/48) of primary tumours were initially p53 positive while this frequency increased to 70.83%(34/48) in tumours associated with malignant progression. This was because 7 of 13 cases which were initially p53 negative became immunoreactive at recurrence. None of the tumours that recurred to the same grade showed any change in p53 status. Recurrence was associated with in increase in p53 LI which was higher in tumours with progression.This new acquisition of p53 immunoreactivity has not been documented in English literature although increase in p53 LI has been documented.

Conclusion: This study confirms the role of p53 in malignant progression of astrocytomas. It also suggests the potential role of p53 LI in predicting malignant progression at recurrence because the highest initial LI was noted in those tumours which progressed to GBM as compared to those tumours which recurred to the same grade or progressed to anaplastic astrocytoma. No correlation could however be demonstrated between p53 immunoreactivity and interval to recurrence.

P O-23

The assessment of usefulness of the MIB-1 antibody in differentiation between grade II and III gliomas or III and IV

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Objectives: The assessment of usefulness of the MIB-1 antibody in differentiation of gliomas with grade II vs III or III vs IV.

Materials and methods: We assessed proliferative activity in 101 cases of gliomas of the CNS representing 12 different subtypes using the monoclonal antibody MIB-1 against the Ki-67 antigen.

Results: We received values of MIB-1 LI (labeling indexes) in individual subtypes as follows: fibrillary astrocytoma GII – MIB-1 LI=3.79%; gemistocytic astrocytoma GII–4.42%; anaplastic astrocytoma GIII–14.04%; glioblastoma GIV–26.75%; pilocytic astrocytoma GI-1.87%; oligodendroglioma GII–4.47%; anaplastic oligodendroglioma GIII-15.90%; oligoastrocytoma GII-4.59%; anaplastic oligoastrocytoma GIII-11.43%; ependymoma GII–4.13%; anaplastic ependymoma GIII-10.20%; myxopapillary ependymoma GI–3.38%. We found differences of values of MIB-1 LI in pairs: 1) grade II vs III and 2) grade III vs IV among astrocytic gliomas and 3) grade II vs III among oligodendrocytic and oligoastrocytic gliomas. However, no differences of MIB-1 LI values were found between grade II and III of ependymal gliomas.

*Conclusions:*The assessment of proliferative activity in individual subtypes of gliomas by using MIB-1 is very useful in routine neuropathology.

P O-24

The relationship between p53 and Ki67 expression and age as biological parameters to establish the prognosis of glioblastomas

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Objectives: Clinical features are important factors in forecasting prognosis of brain tumors. Increasing age appear to be the more significant feature of poor prognosis. However, there is no evidence of the relationship of the age with other biological parameters which could explain this feature.

Methods/Patients: 82 glioblastomas were clinically, histologically and immunohistologically studied. Average survival time was 8.5 months and the mean age of patients was 57.2 years.Ki67 and p53 immunohistochemical staining procedures for light microscopy were performed using the avidin-biotine peroxidase complex.

Results & Discussion: Results demonstrate significant correlation between decreased expression of p53 and increasing age. Significant increase in the expression of Ki67 and increasing age was found. A short survival time was significantly found in old patients which correlated with high expression of Ki67 and low expression of p53. Results demonstrated the relationship between different biological parameters that correlated with different prognosis in patients suffering from glioblastoma. The intrinsic mechanisms of this interrelationship must be further studied.