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The Distribution of the Stress Protein HSP70 in the Cerebellum of Patients with Schizophrenia

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ABSTRACT

Data accumulated from neuro-imaging, clinical and morphological studies suggest that the cerebellum is involved in cognitive functions and thus may be important in the etiopathogenesis of schizophrenia, since patients show cognitive abnormalities. In the present study, we have attempted to localize cellular metabolic dysfunctions applying the immunohistochemical and Western blot method to demonstrate the expression of the stress protein HSP70, which is a marker of cellular metabolic dysfunction in the brain. We studied the post mortem brains' cerebellum of 12 normal controls and 10 schizophrenics. We have used the polyclonal antibody rabbit anti-HSP70 on paraffin sections as well as on nitrocellulose membranes. Bound antibody was detected using the indirect method of streptavidin-peroxidase-DAB. The results in the cerebellum of controls showed intense HSP70 immunoreaction in the synaptic glomeruli of the granular cell layer, in the cytoplasm and dendrites of Purkinje cells. In the same areas of the cerebellum of schizophrenics the HSP70 immunoreactivity was minimal. These results suggest that the reduced levels of HSP70 in the cerebellum are likely to contribute synergistically to the cognitive dysfunction in schizophrenia. This may suggest abnormality of protective neural mechanisms in such pathological conditions.

KEYWORDS

Biological Marker; Post Mortem; Heat Shock Protein; Cerebellum; Schizophrenia

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