

Poster presentation

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p73 and transthyretin expression in circumventricular organs in kaolin-induced and spontaneously hydrocephalic rats

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Background

The p73 protein is a member of a family of transcription factors and is necessary for the survival and long-term maintenance of CNS catecholaminergic neurons and the maturation of the neuroepithelium. p73 deficiency produces many alterations in the brain including hydrocephalus. The circumventricular organ (CVO) are: the organum vasculosum of the lamina terminalis (OVLT) located in the anteroventral region of the third ventricle which is rich in angiotensin II and catecholamines, the subfornical organ (SFO) characterized by the absence of the blood-brain barrier, the subcommissural organ (SCO) which is related with circulation and composition of the CSF and the maturation of the ventricular wall. The purpose of present work is study the expression of the p73 and transthyretin in the CVOs and their variations in the spontaneously and induced hydrocephalus.

Materials and methods

Brains and cerebrospinal fluid (CSF) from control rats of kaolin induced hydrocephalus rats and spontaneously hydrocephalic rats were used. Hydrocephalus was induced, at 10th week of life, by injecting 6 mg of kaolin in the cistern magna and at 24 weeks 200 microlitres of CSF was extracted before sacrifice. The section containing the

OVLT, SFO and SCO were processed by immunohistochemistry with anti-p73 and anti-transthyretin (TTR). Protein bands were identified in CSF by electrophoresis.

Results

The amount of protein in CSF was lower in the induced hydrocephalic rats compared to control rats. Three proteins band (95, 47 and 32 kDa) were found in the CSF of the control rats that were very weak or not observed in the CSF of the hydrocephalic rats. Alterations of the p73 expression in the SFO, OVLT and SCO were observed while the amount of TTR-ir in the hydrocephalic animals varied in the CVOs. The control rats showed p73-ir in the SFO and choroid plexus, The amount of p73-ir was higher in the spontaneously hydrocephalic rats and lower in the induced hydrocephalus. However, TTR does not mark the SFO but was found in the CP of the three groups, and was slightly higher in the induced hydrocephalic rats.

Conclusion

The present results and the fact that p73 plays a role in the survival of neuroepithelium, catecholaminergic neurons and circumventricular structures indicate that the alteration varied according to the kind of hydrocephalus

because variations produced by both types of hydrocephalus are different.

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