REDUCED CSF TURNOVER IS RELATED TO DECREASED LEVELS OF VENTRICULAR AB42

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Aβ42, the basic component of senile plaques, can be eliminated via multiple mechanisms: enzymatic degradation, reabsorption by capillaries or drainage into the cerebrospinal fluid (CSF). In order to verify the involvement of reduced CSF turnover on levels of CSF Aβ42, we studied ventricular CSF of 31 patients suffering chronic communicating or obstructive hydrocephalus.

Patients and methods:

Patients: The study was performed on a panel of 31 patients (men: 17, women: 14), aged from 28 to 86 years requiring surgery (ventriculostomy or ventriculo-peritoneal shunt). Nine suffered from idiopathic Normal Pressure Hydrocephalus (iNPH) and 22 had a chronic hydrocephalus of other origin (oH). Aβ42 levels were measured in ventricular CSF of all patients, and in lumbar CSF of 5 patients with communicating hydrocephalus.

Measurement of Aβ42: We used an ELISA assay (Innotest ® β-amyloid (1-42), Innogenetics, Ghent, Belgium). Aβ42 rates higher than 500 pg / ml in lumbar CSF are considered normal.

Results: Aβ42 levels in ventricular CSF and lumbar CSF were strictly correlated (r=0.99) and did not differ significantly (p>0.05). Twenty four of the 31 patients (77%) had ventricular CSF Aβ42 lower than 500 pg/ml, 20 (64%; 5 with iNPH and 15 with oH) were lower than 300 pg/ml. There was no significant difference between ventricular levels of Aβ42 in patients with iNPH and with oH.

Conclusions: In patients with communicating or obstructive chronic hydrocephalus, irrespective of aetiology, Aβ42 levels in ventricular CSF are decreased. This study suggests reduced CSF turnover favors the decrease of CSF Aβ42.