ALZHEIMER DISEASE

CSF biomarkers could be used in A β immunotherapy trials for AD

The core cerebrospinal fluid (CSF) biomarkers of Alzheimer disease (AD)—amyloid- β (A β), total tau (t-tau) and phosphorylated tau (p-tau)—have been considered for use as biomarkers in clinical trials to monitor the therapeutic effects of drugs, but clinical data on their suitability for this function has been limited. In a study published in *Archives of Neurology*, Kaj Blennow and colleagues now show that immunotherapy with the A β -specific monoclonal antibody bapineuzumab reduces CSF t-tau and p-tau biomarker levels in patients with mild to moderate AD. “These findings suggest that [bapineuzumab] attenuates the intensity of the neurodegenerative process [in patients with AD],” says Blennow.

In two phase II, multicentre, double-blind trials, 46 patients were randomly assigned to receive bapineuzumab ($n=27$) or placebo ($n=19$) for 12 months. CSF samples were collected by lumbar puncture,

and the levels of t-tau, p-tau and A β were measured with ELISA at baseline and at the end of the study. In pooled analyses of the two trials, CSF t-tau and p-tau levels were decreased at the end of the study compared with baseline in bapineuzumab-treated patients, whereas no change was detected in the placebo group. No notable difference was observed in A β levels in either group.

These findings indicate downstream effects of bapineuzumab on the degenerative process in AD, and suggest that CSF biomarkers could be useful in future trials of disease-modifying therapies in early-stage AD.

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Original article Blennow, K. *et al.* Effect of immunotherapy with bapineuzumab on cerebrospinal fluid biomarker levels in patients with mild to moderate Alzheimer disease. *Arch. Neurol.* doi:10.1001/archneurol.2012.90