Background: Nerve growth factor (NGF) is important for the survival of central cholinergic neurons, a signalling system impaired in Alzheimer’s disease (AD). We treated AD-patients with NGF administered via encapsulated NGF-producing cells implanted into the basal forebrain.

Objective: To investigate the effects of NGF treatment on biological markers in CSF.

Methods: Six subjects with mild to moderate AD received encapsulated NGF producing cells implanted bilaterally into the forebrain using stereotactic neurosurgery. The patients were evaluated clinically and with CSF measurements at baseline, 3 and 12 months of treatment.

Results: There were 4 women and 2 men, mean age was 62.2 ±6.5 years with mean MMSE at baseline of 22 (±1.7). There was no significant change of Aβ1-42 or tau at baseline compared with 12 months. A significant decrease in p-tau was found. There was a significant but transient increase in the neurofilament (NFL) levels at 3 months which was not observed at 12 months. The levels of glial fibrillary acidic protein (GFAP) decreased at 3 months and were unchanged compared with baseline at 12 months.

Conclusions: There was no observed influence on Aβ1-42 levels or total-tau levels but a significant decrease in p-tau levels. Contribution of NGF treatment may be possible but cannot be confirmed in such a small number of patients. The transient increase in CSF neurofilament levels might be explained by the surgical procedure (albeit 3 months earlier) and was not observed at 12 months. It was not paralleled by a similar increase in GFAP levels.