KYNURENIC ACID IN THE CEREBROSPINAL FLUID OF PATIENTS WITH ALZHEIMERS DISEASE

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Background: Previous reports describing altered glutamate levels and neuroinflammatory processes in patients with Alzheimer disease (AD) have led to the hypothesis that kynurenic acid (KYNA) (an endogenous glutamate regulating receptor antagonist and marker of immune activation) may play a role in the pathophysiology of AD. Indeed, a previous post mortem study on AD brain tissue has shown that KYNA levels are increased in several brain areas, whereas a recent article reports that cerebrospinalfluid (CSF) KYNA concentrations in AD patients are significantly lower compared to controls.

Our study aims to measure KYNA concentrations in the CSF from AD and healthy elders and correlate our findings with concentrations of established AD biomarkers (p-tau, Aβ₁₋₄₂ and T-tau) and inflammation associated proteins.

Methods: High performance liquid chromatography was used to measure KYNA concentrations in lumbar CSF samples from AD-patients (n=20, age 75±3) and age-matched healthy elderly controls (n=20, age 76±5) included in the Malmö Alzheimers Study.

Results: No significant difference in KYNA levels was seen between AD and controls. However, when dividing the groups based on gender we found that female AD patients had significantly higher KYNA levels compared to the male AD patients (3.42 ± 0.93 vs 2.39 ± 0.78, p=0.019). This gender difference was not detected in the control group. Furthermore, we found a correlation between KYNA levels and p-tau (p=0.011, r=0.571) and sICAM levels (p=0.007, r=0.597) in the AD patient group.

Conclusion: Our results may indicate that gender-specific inflammatory processes are involved in AD.