COMPARISON OF DIAGNOSTIC POWER OF CEREBROSPINAL FLUID BIOMARKERS Aß AND TAU AND CORRESPONDING VARIABLES FOR ALZHEIMER’S DISEASE DIAGNOSIS: IMPLICATION FOR DEFINING A SIMPLE DECISION TREE

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Introduction: It is now admitted that the combination of the three cerebrospinal fluid (CSF) biomarkers for Alzheimer’s disease (AD), Aß1-42, total Tau (t-Tau) and phospho-Tau (p-Tau) improves diagnostic power. Therefore, several CSF variables using the combinations of 2 or 3 of these biomarkers have been emphasized to improve AD diagnosis. However, it is not clear, in clinical practice, how to establish a simple decision tree using these parameters.

Aim: Comparing sensitivity, specificity and diagnostic power (DP) of CSF biomarkers / variables. Defining, which are the major indicators of AD diagnosis. Establishing a simple decision tree for AD diagnosis.

Methods: 233 patients referring to the Lille Memory Clinic for memory impairment participated to the study. They were divided in three groups according to the diagnosis based on the international criteria: controls (N=38), AD (N=91) and other dementia (N=104). Measurement of CSF Aß1-42, t-Tau and p-Tau levels by ELISA (Innogenetics; Belgium). CSF variables were t-Tau/Aß1-42, Aß1-42/p-Tau, ATI index (Aß1-42 = 240+1.18 t-Tau) and DF (Aß1-42/p-Tau = 3.694+0.0105 t-Tau).

Results: CSF variables showed better performances than CSF Biomarkers alone. The major indicators for AD diagnosis were p-Tau (DP=88.5%) for CSF biomarker and Aß1-42/p-Tau ratio (DP=91.5%) for CSF variables. Finally, we propose a simple decision tree for the use of CSF parameters for the diagnosis of AD.

Conclusion: The systematic analysis of diagnostic performance of new CSF biomarkers / variables enables to reduce the number of analysis and to establish simple decision trees for the clinical practice.