Background:
Alzheimer’s Disease Diagnoses is a time consuming process:

A better non-bias diagnostic tool: Computer Based Automated Classification by MR images

In this study, we aimed to classify MR images for recognizing AD in a group of patients who were previously diagnosed by clinical history and neuropsych exams and still under follow-up by using Support Vector Machine (1).

Methods:
➢ Twenty-three probable AD patients (mean age: 74.4 ± 8.2 years) diagnosed according to NINCDS-ADRDA criteria
➢ Twenty-three gender and age matched controls (mean age: 72.4 ± 8.2 years)
➢ MR images were obtained by 1.5 T Siemens Symphony and each image was evaluated by an experienced neuroradiologist to exclude possible other diagnoses.

Results:
AD patients had lower gray matter volume in hippocampal regions, cingulate, parietal and frontal cortex compared to controls (2).

Support vector machines successfully separate patients with AD from healthy aging subjects:
➢ the sensitivity of 86%
➢ the specificity of 74%.

Discussion:
➢ Our results showed that SVM machine SVM is a promising tool for diagnosis of AD.
➢ However, our results are not as good as previous reports
➢ Most of the patients were first applicant and at early stages of the disease
➢ Our patients’ diagnoses were not confirmed by histopathological evaluation
➢ No region of interest analyses were done

Region specific analyses and including non-linear discrimination in SVMs might increase the accuracy of AD diagnoses and should be tested in future studies.

References: