SIMPLE VISUAL RATING OF LOBAR ATROPHY IN THE DIAGNOSIS OF FRONTOTEMPORAL DEMENTIA

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Introduction: Structural MRI has the potential to contribute to differential diagnosis of frontotemporal dementia (FTD) and Alzheimer’s disease (AD). While volumetric techniques provide detailed measures, they lack widespread applicability.

Aims: To assess the capacity of a simple visual rating scale to replicate the findings of volumetric methods in distinguishing FTD from AD. Results from volumetric measures are published (Bocti et al. 2006).

Methods: A simple semi-quantitative visual rating scale was applied on coronal T1 MRI to assess atrophy in prefrontal, temporal and hippocampal regions in a group of 44 subjects from a tertiary care cognitive disorders clinic (FTD n=15, AD n=15, controls n=14). The rating scales were adapted from Kippps et al. 2007 and Scheltens et al. 1992 (0, no atrophy to 4, severe atrophy). Results were compared with volumetric MRI measures of corresponding regions obtained with Semi-Automatic Brain Region Extraction (SABRE), a validated in-house software based on individually determined cortical landmarks (Dade et al. 2004).

Results: The summed score for the visual rating of anterior temporal and prefrontal atrophy was 93% sensitive and 74 % specific for the FTD group, similar to MRI volumetric measures. Medial temporal atrophy did not improve discrimination between groups, nor did atrophy in the posterior temporal regions. Individual region ratings correlated well with volumetric measures (Spearman's rho from -0.60 to -0.74).

Conclusions: A simple visual rating of prefrontal and anterior temporal regions can reliably distinguish between FTD and AD. This approach has more potential for widespread clinical applications than resource-intensive volumetric measures.