Sensitivity and Specificity of the ECAS in Parkinson's Disease and Huntington's Disease

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Introduction

The study aimed to investigate psychometric properties of the ECAS, recently validated in the Italian language[1], in Parkinson's (PD) and Huntington's (HD) diseases. In particular, the sensitivity and specificity of the ECAS in highlighting HD and PD cognitive-behavioral features and in differentiating between these two populations and from healthy controls (HC) were evaluated.

Methods

Participants were administered the ECAS, together with other cognitive screening tools (FAB, MoCA, RME) and psychological questionnaires (BDI, STAI/Y, I-DAS). Patients' possible changes in behavior were evaluated by carers interview (ECAS Carer Interview). 73 PD, 38 HD patients and 49 HC were recruited at the San Luca Hospital, IRCCS Istituto Auxologico Italiano and at CSS-Mendel and LIRH Foundation site, Rome. Correlations between the ECAS and traditional cognitive measures, together with core clinical features were analyzed.

Results

The ECAS distinguished between HD patients and HC (p < .001) and between the two clinical syndromes (p < .001) with high sensitivity and specificity (Figure 1). Even if diagnostic accuracy of the ECAS in distinguishing between PD and HC was very low (p= .05), the PD cognitive phenotype was very well described by the ECAS. No significant differences was found in ECAS Carer Total Behaviour between PD and HD patients (Figure 2).

Convergent validity of the ECAS against other traditional cognitive screening was observed, as well as correlations with psychological aspects and typical clinical features, especially for the HD group.

Figure 1. ECAS domains and subdomains: percentage of PD, HD patients and HC falling below adjusted cut-offs across in each cognitive domain.

Figure 2. ECAS behaviour domains: frequency of behavioural impairment (%) in PD and HD patients.

Conclusions

The ECAS represents a rapid, feasible and sensitive tool, useful also in different neurodegenerative disorders affecting verbal-motor abilities other than ALS. Clinical applications in these neurodegenerative conditions require further investigations.
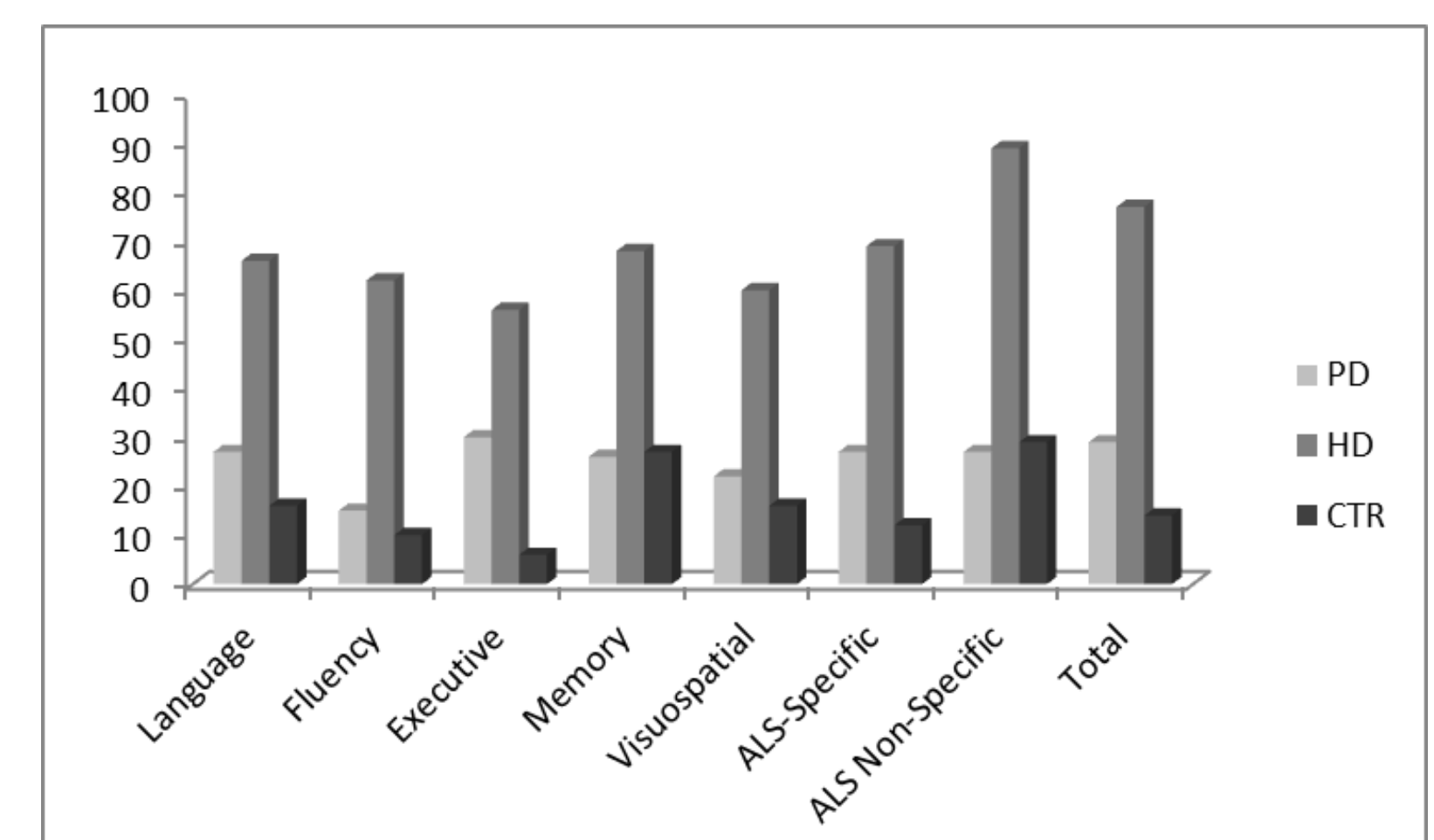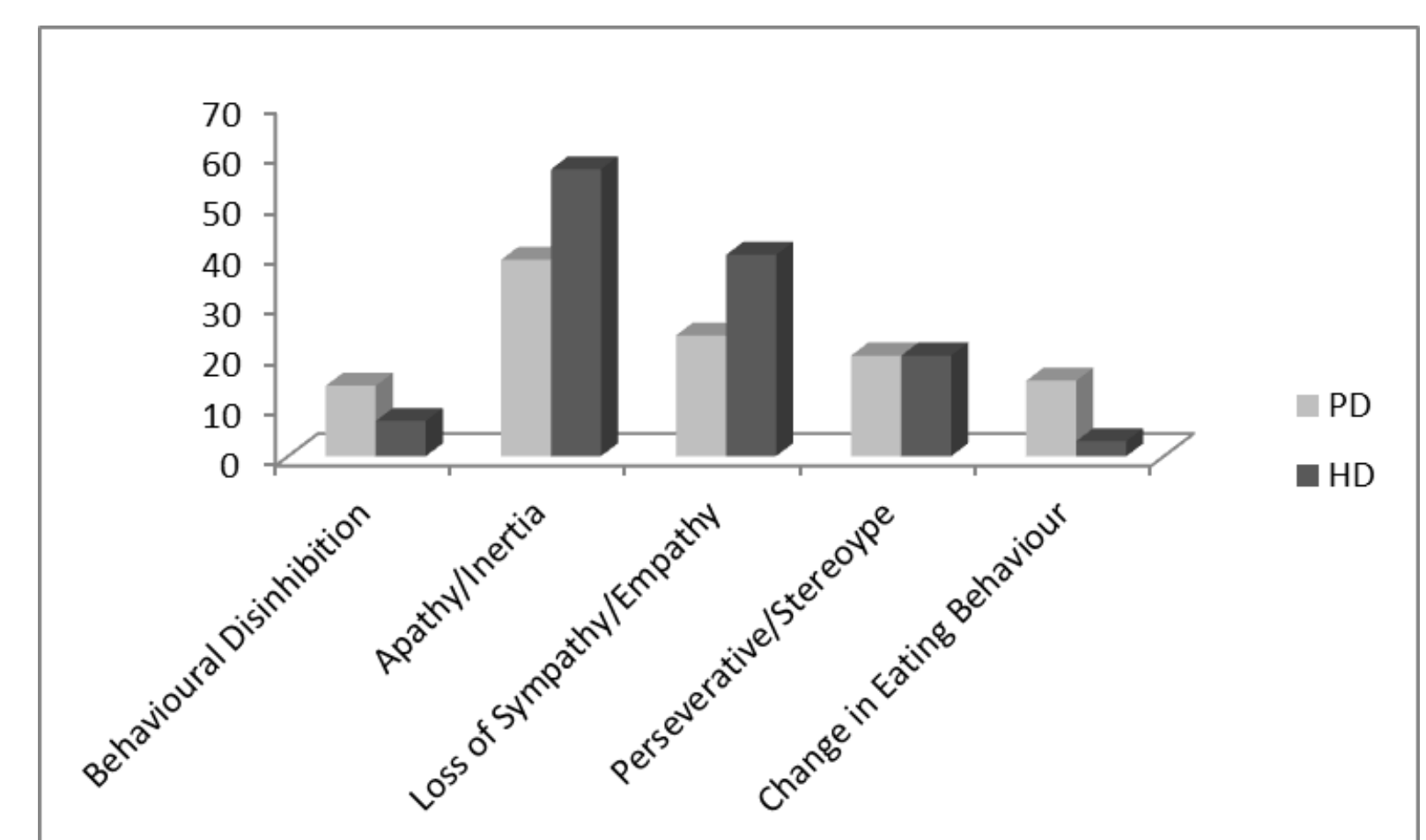
Reference

1. Poletti B, Solca F, Carelli L et al (2016) The validation of the Italian Edinburgh Cognitive and Behavioural ALS Screen (ECAS). Amyotroph Lateral Scler Frontotemporal Degener 17:489–98.

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