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Introduction

Probable Alzheimer's disease (pAD) is characterized by difficulties in language processing usually related to word level and processing of meaning. Syntactic abilities are thought to remain relatively preserved even though recent studies have pointed towards a syntactic deficit as well, related to increased structural complexity (Emery, 2000). Specifically, individuals with AD have demonstrated comprehension deficits with object-extracted sentences -OVS (Markova et al, 2017), reversible passives and non-canonical structures (Grober and Bang, 1995) as well as centre-embedded object sentences (Grossman et al., 1996). More recently, AD individuals were found to be worse in object-extracted relative clauses compared to subject-extracted relative clauses (Molympaki et al 2013). In the majority of these studies, the observed syntactic deficits were attributed to working memory deficits. The present study aims to assess syntactic abilities of Slovenian-speaking individuals in comprehending centre-embedded relative clauses (CE-RC), wh-questions and non-canonical sentences (OVS). Slovenian is a highly inflected, morphologically rich language where grammatical morphemes clearly code the function of each word in the sentence.

Methods

Up to now, 4 participants with mild-to-moderate pAD (MMSE score: 16-25; age: 70-84) and 10 healthy controls participated in a sentence-picture matching task. Participants had to match a total of 60 sentences with pictures depicting the corresponding action. Each action belonged to one of the following types of sentences: CE-RC (n=20), wh-questions (n=20) and OVS sentences (n=20). For each trial, they were presented with three pictures (two in the case of wh-questions) and were instructed to choose the one which best describes the sentence given to them.

Results

Percentages of correct responses are shown in Figure 1. A general observation is that participants do manifest a syntactic deficit, as they perform either at chance or below chance at the comprehension of structures under investigation. Specifically, all four individuals performed below chance when it comes to CE-RC, while they were at chance when it comes to wh-questions and OVS-sentences for which individual variability is also observed.

Conclusions

The current pilot results indicate a syntactic impairment in Slovenian-speaking individuals with pAD when it comes to the comprehension of complex structures. The dichotomy between CE-RC on the one hand, and wh-questions & OVS sentences on the other, could be attributed to the different demands CE-RC pose on the memory mechanism supporting syntactic comprehension. Comprehension of CE-RC appears to be more difficult compared to the comprehension of referential (wh-questions) and non-canonical structures in terms of argument realization (OVS). Thus, it appears that there is a hierarchy of complexity which is reflected in pAD performance. As further data will be collected and additional analyses will be performed, we will have a better idea as to what might trigger this dichotomy.

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