

Detecting amnestic and non amnestic Mild Cognitive Impairment converter to Alzheimer's Dementia using visual processing speed tests

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- Visual processing speed measures might be potentially useful to differentiate both amnestic and non-amnestic mild cognitive impairment converters to probable Alzheimer's Disease dementia from non-converters.
- No differences in Trail Making Test A were found between MCI-Ac and MCI-nAc, while both groups differed significantly from MCI non converters and healthy controls.

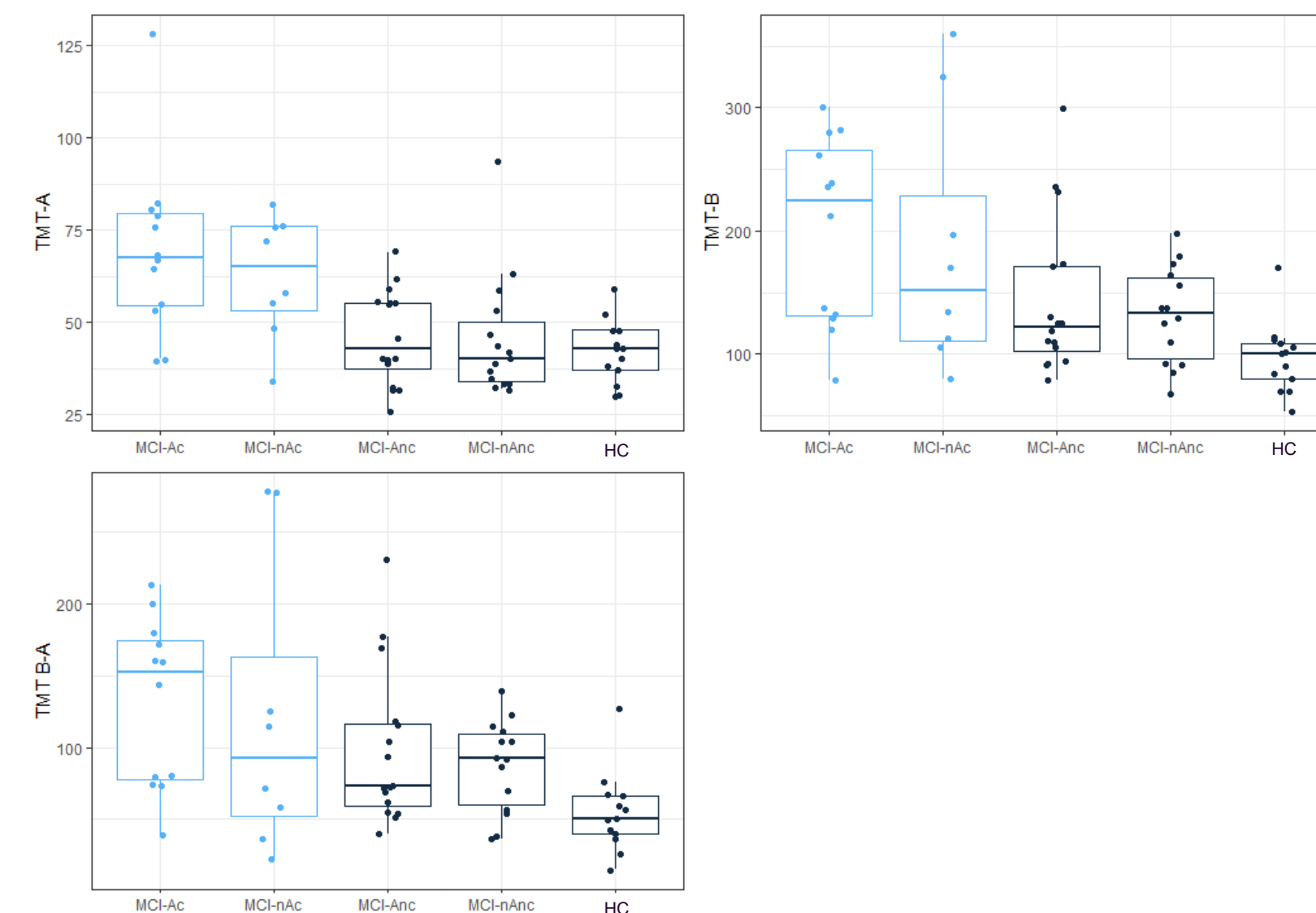
INTRODUCTION

We analyzed group differences in visual processing speed tests, namely Trail Making Test (TMT) A and B, between amnestic (A) and non-amnestic (nA) subtypes for converters to probable Alzheimer's Disease dementia (MCI-Ac and MCI-nAc, respectively), non-converters (MCI-Anc and MCI-nAnc) and healthy controls (HC).

Amnestic converters had a significantly lower score in ACE III than MCI-nAnc and HC ($p = 0.01$, $p = 0.005$).

No significant differences were observed between amnestic converters and non-amnestic converters in TMT-A. However, both of them differed significantly from amnestic non-converters ($p = 0.004$ and $p = 0.026$, respectively), from non-amnestic non-converters ($p = 0.002$ and $p = 0.02$), and from HC ($p = 0.0009$ and $p = 0.008$). For TMT-B, no differences were found between converter subtypes, but they non-converters and HC ($p = 0.029$, $p = 0.03$, and $p = 0.0005$, respectively).

RESULTS



Variables	Mean score for MCI-Ac (± SD)	Mean score for MCI-nAc (± SD)	Mean score for MCI-Anc (± SD)	Mean score for MCI-nAnc (± SD)	Mean score for HC (± SD)
Addenbrooke's Cognitive Examination (ACE-III)	86.2 (± 4.76)	86.2 (± 4.76)	89.6 (± 5.57)	89.2 (± 8.8)	93.8 (± 3.22)
Ineco Frontal Screening (IFS)	20.4 (± 3.77)	22 (± 3.05)	22.2 (± 3.14)	20.8 (± 3.34)	24.5 (± 2.09)
Age	76.3 (± 3.81)	75.8 (± 3.58)	75.5 (± 4.91)	75.3 (± 3.4)	75.2 (± 2.71)
Education Years	14.8 (± 3.3)	12.6 (± 3.54)	13.7 (± 2.96)	14.5 (± 3.5)	14.6 (± 3.64)
FAQ	2 (± 3.23)	0.85 (± 1.57)	1.58 (± 1.98)	1.36 (± 1.82)	1.31 (± 2.46)
BDI-II	10.7 (± 7.51)	12.9 (± 6.62)	10.7 (± 5.47)	12.9 (± 9.57)	12.3 (± 6.2)
Follow-up years	6.23 (± 1.78)	6.64 (± 6.26)	6.4 (± 3.91)	6.1 (± 2.7)	4.99 (± 2.75)
Sex					
- Male	2 (16.7%)	3 (37.5%)	0 (0%)	5 (33.3%)	1 (7.7%)
- Female	10 (83.3%)	5 (62.5%)	16 (100%)	10 (66.7%)	12 (92.3%)

METHODS

In this retrospective study, participants were divided into five groups: 12 MCI-Ac, 8 MCI-nAc, 16 MCI-Anc, 15 MCI-nAnc and 13 HC. Pairwise comparisons were used to detect differences between groups in TMT-A, B and in the difference between TMT-B and A (TMT B-A), in ACE III, IFS and across demographic data (age, years of education, depressive symptoms and activities of daily living).

CONCLUSIONS

TMT-A might be an effective measure to differentiate both amnestic and non-amnestic MCI converters to Alzheimer's Dementia from those who do not. Additionally, TMT-B may be useful for differentiating mainly between MCI-Ac and MCI-nc. Future studies should consider a larger sample for each subgroup and compare its effectiveness against non AD pathologies.

REFERENCES

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LIMITATIONS

The main limitation is the small sample size per group and no comparison between different etiologies. Furthermore, there is an uneven gender distribution, as most of our sample was composed by females.

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