



Cognitive Dysfunction: Comparison in Multiple Sclerosis with Human Controls

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Introduction

- Cognitive dysfunction (CD) has been reported in approximately 60% of patients with multiple sclerosis (MS).
- CD is a cause of significant disability and affects modalities such as memory and information processing speed.
- Establishing cognitive dysfunction in MS compared to human controls could afford earlier intervention and management of distressing symptoms.

Objective

- To assess cognitive dysfunction in multiple sclerosis patients compared to healthy controls.
- To utilize two test batteries: NeuroTrax Mindstreams and BICAMS to measure cognitive dysfunction.

Methods

We utilized two tests, computerized cognitive testing (NeuroTrax) and the BICAMS test battery, to address the question of the difference in the information processing speed domain of cognitive dysfunction between the groups.

Results from other cognitive modalities were measured and information processing speed was selected for comparison between MS and controls.

The NeuroTrax test comprises three levels of timed arithmetic problem sets to measure IPS. The Symbol Digit Modalities Test (SDMT) from the BICAMS battery was used to evaluate IPS. There were 28 patients age-matched to 28 controls in the study.

Results

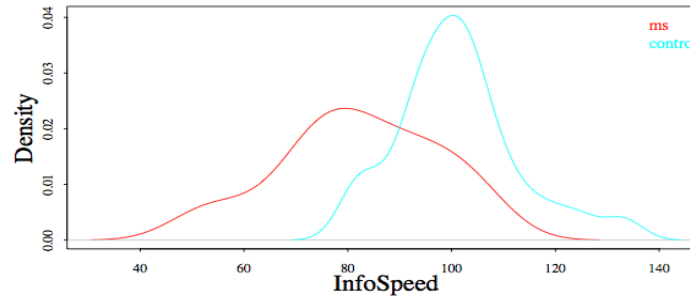


Figure 1. Information processing speed in MS, and Controls Measured by NeuroTrax Minstreams.

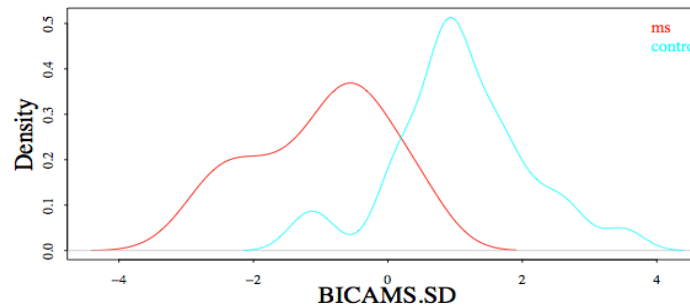


Figure 2. Information processing speed in MS, and Controls Measured by BICAMS.

	Difference	t	p
InfoSpeed	21.421	6.932	0.0000
BICAMS.SD	2.294	7.947	0.0000

Figure 3. Summary of a paired t-test for the difference between MS patients and matched healthy controls ($p < 0.0001$).

Conclusions

- Data were analyzed by paired t-test to measure the difference in information processing speed of multiple sclerosis patients compared to controls.
- We found significant differences in information processing speed between MS patients and controls that are detectable by both the BICAMS and NeuroTrax tests ($p < 0.0001$).
- The study reveals significant differences in the information processing speed domain between multiple sclerosis patients and controls as demonstrated by the BICAMS and NeuroTrax tests.
- Our study is unique due to the utilization of both the BICAMS and NeuroTrax tests and the comparison of multiple sclerosis patients to human controls.
- Findings from our study reinforce the existing literature regarding cognitive dysfunction in multiple sclerosis.
- Our findings can be applied clinically to anticipate deficits and intervene early in the course of multiple sclerosis.

References

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