

The ECOCAPTURE research program and the generation of behavioral metrics to assess behavior disorders in bvFTD.

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State of the art

Behavioral variant Frontotemporal dementia (bvFTD) is characterized by personality changes, disinhibition, apathy, hyperorality, and perseverative/compulsive behaviors. Apathy and disinhibition are commonly assessed using validated assessment scales. However, these scales are biased by the subjective evaluation of the patient or his or her relatives. More generally, behavior disorders may be difficult to capture through questionnaires, especially in neurological diseases with anosognosia, such as bvFTD, and would be more easily identified through an ecological observation, using sensors.

Methodology

In line with these considerations, we have developed the ECOCAPTURE research program (FrontLAB, ICM, 2015-2022) to provide behavioral metrics to objectively assess behavior under ecological conditions. The paradigm mimics a naturalistic situation (i.e., waiting room), and the behavior assessment was driven by a 45-minute controlled scenario. Individuals' behavior was video-recorded, and movement acceleration was measured using a sensor. Behavioral metrics were obtained by behavioral coding from video and based on the apathy and disinhibition ethograms (<https://data.mendeley.com/datasets/mv8hndcd95/2>).

Results

In our previous studies, several metrics (behavior duration or occurrence) have shown their ability to discriminate between bvFTD patients and healthy controls, and stratify the bvFTD patients when combined with MRI. In this study, our method tracked the flow of each behavior from the apathy ethogram, during the first seven minutes when the participants discovered the waiting room. We showed that bvFTD patients (n = 20) can be classified according to behavioral kinetics.

Conclusion

The clinical applicability seems realistic and feasible, as a rapid clinical test, through a scenario of a few minutes.

Conflicts of interest

N/A