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Saturday

Pupil dilates with increased cognitive processing in a case with behavioral variant FrontoTemporal Dementia

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State of art
Behavioral variant of Frontotemporal dementia (bvFTD) patients undergo anosognosia, or “emotional blunting”, may limit their ability to describe their mental processes or even to interact with the neuropsychological screening. Pupillometry may overcome this obstacle by providing a physiological insight into cognitive processing. We investigated whether pupil size can variate with the intensity of cognitive processing in a patient with bvFTD.
Method
The case referred to CH, a 62 years-old patient with diagnosed bvFTD. We invited the patient to perform forward spans and backward spans, and, in a control condition, to count aloud. We recorded pupil activity using eye-tracking glasses during the spans and control condition.
Results
Analysis demonstrated larger pupil size during backward spans (M = 3.77 mm, SD = 1.20) than during forward spans (M = 3.00 mm, SD = .92) (Z score = 1.37), as well as larger pupil size during forward spans than during counting (M = 2.11 mm, SD = .65) (Z score = .84).
Conclusion
These findings demonstrate how increased cognitive load triggers increased pupil size in a case with bvFTD. We believe that this study case will pave the way for population-based studies on the value of pupillometry as an index for cognitive processing in bvFTD.
Keywords
behavioral variant FrontoTemporal Dementia; cognitive load; FrontoTemporal Dementia; pupillometry; spans;

Conflicts of interest

None