Video-oculography during free visual exploration (FVE) - a sensitive method to detect neglect

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Neglect is a common attention deficit after right-hemispheric stroke and is most accurately diagnosed by a systematic, ecological observation during everyday behaviour, using the Catherine Bergego Scale (CBS). However, the CBS is time-consuming and often omitted in clinical settings, especially stroke units. Over the past years we therefore used video-oculography during free visual exploration (FVE), a fast and promising tool to diagnose neglect, and investigated its usability, sensitivity and reliability in different patient studies.

During FVE, photographs of natural scenes are presented, and the patient's individual eye-movements are measured using a remote, infrared-based, video eye-tracking system. In the off-line analysis data is cleaned, and the mean gaze position (MGP) calculated. The MGP is then compared against age-matched healthy controls. In several studies we showed that FVE can be performed in few minutes, and is sensitive in mirroring neglect in everyday behaviour. FVE has a high sensitivity and specificity to diagnose neglect and is more sensitive than conventional neuropsychological paper-pencil tests (e.g. different cancellation tests, Line Bisection, Five-Point Test, and combinations thereof).[1] Furthermore, the good to excellent test-retest-reliability[2] of FVE further suggests its usefulness in longitudinal assessments of patients' neglect severity during neurorehabilitation and in treatment trials. Additionally, we provided evidence that FVE could be used as a neglect screening tool in left-hemispheric stroke patients with aphasia in which compliance with verbal test instructions is compromised by language deficits.[3]

Overall, FVE is a fast and accurate screening tool allows the initiation of comprehensive neuropsychological diagnostics and therapy from early on. Beyond, FVE can be recommended for the longitudinal assessments of neglect severity during neurorehabilitation and in treatment trials.

Bibliography
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