

Oral Presentation

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A short neuropsychological test battery for measuring functional outcome after shunt placement in patients with normal pressure hydrocephalus

P Klinge*, N Rückert, T Brinker, L Dörner and M Samii

Address: International Neuroscience Institute Hannover, Hannover, Germany

Email: P Klinge* - klinge@ini-hannover.de

* Corresponding author

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Background

To find a simple neuropsychological test battery that accurately measures functional outcome early after shunting in Normal pressure hydrocephalus (NPH).

Materials and Methods

Cognitive and motor function was assessed in 30 NPH patients (65 ± 13 years) at three time intervals using 10 neuropsychological measures performed at baseline, at one week and at seven months after surgery. Assessment of functional outcome, using the Stein & Langfitt score, occurred at seven months and patients were classified as responders ($n = 16$) and non-responders ($n = 14$). To determine most representative measures (test-battery) for the NPH cognitive and motor function, factor analysis was performed on the preoperative neuropsychological results. The pre- and early postoperative results were compared in the two groups and the accuracy of predicting functional outcome by early psychometric test results obtained at one week after shunting was assessed (Logistic regression).

Results

Three of the ten psychometric tests analyzed emerged as useful for early assessment of cognitive and motor function in NPH: Visual attention, immediate verbal recall and motor precision. At one week after shunting, changes in these three measures were already different in the two groups; responders had a marked improvement in visual attention, $P = 0.004$ and motor precision, $P = 0.008$, when compared to non-responders. In verbal recall responders remained stable whereas non-responders deteriorated, $P = 0.007$. These early changes correlated with the late func-

tional outcome with an accuracy of 87% (non responders:90%; responders:85%).

Conclusion

Three psychometric tests provide early and reliable measures of functional outcome in NPH. In follow-up examination, these tests offer a practical and standardized tool to monitor the patient status, to reset adjustable valves and to compare the clinical results from different centers.