Abstract

Short and comprehensive assessment of praxis production: Reliability and validity of a new Test of Upper Limb Apraxia (TULIA)

T. Vanbellingen¹, B. Kersten², B. Van Hemelrijk¹, A.L.J. Van de Winckel³, M. Bertschi⁴, R. Müri⁴, W. De Weerdt³, S. Bohlhalter⁴

Klinik Bethesda, Neurorehabilitation Centre, Tschugg¹, Department of Psychology, University of Bern², Department of Rehabilitation sciences, University of Leuven, Belgium³, and Division of Cognitive and Restorative Neurology, Department of Neurology, Inselspital, University Hospital Bern⁴, Switzerland

Background: Only few standardized apraxia scales are available and they do not cover all relevant behavioural and motor aspects of praxis production.

Objective: to evaluate reliability and validity of newly developed test to measure upper limb apraxia (TULIA), which is short and still comprehensive.

Methods: The TULIA consists of 48 items including imitation and pantomime of non-symbolic (meaningless), intransitive (communicative) and transitive (tool related) gestures corresponding to 6 subtests. Items were balanced for kinematic features. A 6- point scoring method (0-5) was used (maximum score 240). Performance was assessed by blinded raters based on videos in 133 stroke patients, 84 with left hemisphere damage (LHD) and 49 with right hemisphere damage (RHD), as well as 50 healthy subjects (HS).

Results: Mild apraxia was found in similar proportions of LHD (43%) and RHD (37 %) patients (below cut-off score of 194). By contrast, moderate to severe apraxia (below two-thirds of the cut-off score) was almost exclusively found in LHD patients (25%). The clinimetric findings demonstrated mostly good to excellent internal consistency, inter- and intra-rater (test-retest) reliability, both at the level of subtests and individual items. Criterion validity was evaluated by confirming hypotheses based on the literature and construct validity was demonstrated by a high correlation \( r = 0.82 \) with the De Renzi-Test.

Conclusion: These results show that the TULIA is a reliable and valid instrument to systematically assess praxis production. The test can be easily applied and is therefore useful in clinical practice and for research purposes.