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The locked-in-plus-syndrome

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Background and aims: Recently, an intense discussion started about the nomenclature and examination protocols of patients with disorders of consciousness and related syndromes as the locked-in-syndrome (LIS). As the number of publications finding brain responses to different stimuli using fMRI or Evoked Potentials in these patients increases, we are in need of a diagnosis scheme which best fits to describe these patients. LIS plus (LIPS) is proposed as the diagnostic category for patients who show typical signs of LIS combined with disorders of consciousness.

Methods: We collected clinical and instrumental data of these patients to start with the development of a new classification for patients. 10 patients with pontine and other brain lesions following vascular injuries were examined clinically, with standardised behavioural assessment scales, MRI and fMRI.

Results: All 10 patients showed different degrees of arousal, consciousness, and other neurological and behavioural symptoms. Additionally, the extent of structural brain damage and brain response in fMRI was found to be variable in spread.

Conclusion: The main clinical differences between LIS and LIPS comprise a variety of additional extra-pontine brain lesions and frequently occurring symptoms as hypersomnia syndromes, frontal release signs, thalamic posturing of hand and/or feet. Rarely an akinetic mutism may be present in LIPS. Extra-pontine brain lesions may frequently occur in mesencephalic, thalamic and cerebellar brain structures. Also an involvement of occipital and temporal brain regions is possible, depending on varieties of the vertebro-basilar artery blood supplying system. Due to the heterogeneity of the collected data a new diagnostic category should be implemented in clinical practice.

Disclosure: Nothing to disclose

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The impact of proper handling of ARAT zero scores on the heterogeneity of data in rehabilitation studies

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Background and aims: Established therapeutic treatment options for stroke are limited to the first hours after stroke and focus on the recanalisation of the occluded blood vessel. As drugs acting only on neuroprotection failed in double-blind clinical trials, there are great hopes for recovery-based therapeutic approaches.

Methods: In order to evaluate these strategies properly, important lessons on study methodology and, in particular, scales application should be learned from the recent studies in stroke rehabilitation.

Results: In the recently published clinical study (Muresanu et al., 2016) beneficial effects were reported by combining Cerebrolysin, a neuropeptide preparation acting like neurotrophic factors, with a standardised rehabilitation program. This trial was designed as a randomized, doubleblind, placebo-controlled trial with the Action Research Arm Test (ARAT) score change from baseline to day 90 as the primary study end point. The ARAT assesses upper limb motor function on a scale ranging from 0 (no function) to 57 (no functional limitation). Although the ARAT has been used in a number of trials and validity, sensitivity, interrater and intrarater reliability have been reported high, there are also deficiencies in the ARAT assessment. One of these is the heterogeneous zero assessments at baseline leading to an allocation of 0 scores to quite heterogeneous clinical conditions.

Conclusion: Although in this study the results of the preplanned sensitivity analysis in patients with baseline ARAT >0 were consistent with the results of the primary analysis, it is important to point out the impact of proper handling of ARAT zero scores on the heterogeneity of study data.

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