

Advancing the appreciation of therapeutic interventions in SCI1

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Abstract

In clinical trials the outcome of gross body functions (ambulation, independence, and spasticity) are monitored to evaluate the effectiveness of interventions. However, these gross measures abide 2 major shortcomings: 1) they are rather insensitive to provide detailed information about underlying mechanisms of recovery i.e. changes in key functions (motor, sensory, motor control) relevant to recovery, and 2) the clinical value of many interventions will be best evaluated by rather specific or detailed functional outcome measures (hand function, postural stability, sensory feedback etc.) where the level of lesion and segmental deficit is most relevant to overcome specifically addressed impairments.

Therefore, the assessment of segmental function is important for a meaningful stratification of patients and to provide sensitive and detailed outcome measures able to disclose not only subtle changes but also to relate improvements in specific sensor-motor capacity to the recovery of function. Obviously these assessments need to be tailored to the specific goal of an intervention and trial protocols should a priori take into consideration the above mentioned issues. Furthermore, protocols distinguishing outcomes of complex (gross) and specific (detailed) function will provide more sensitive clinical thresholds to identify responders. In this context available data sources from SCI trials (Sygen) and prospective data collections (EMSCI, US System Model) as well as novel assessments have been mined to coach the appropriate stratification of patients, estimating reasonable thresholds of effectiveness and provide sensitive and responsive trial protocols.

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