Responsiveness and Sensitivity of a Clinical Impairment Measure Specific for Traumatic Tetraplegia: An International Multi-centre Assessment of the GRASSP Version 1.0

Sukhvinder Kalsi-Ryan, BSc PT, MSc, PhD, *Toronto, ON, Canada (n) Nothing; Michael G Fehlings, MD, PhD, FRCSC, FACS, Toronto, ON, Canada (1) DePuy; (3b) DePuy; (4) Medtronic; (6) Medtronic, AOSpine North America; (7) DePuy, Synthes, Medtronic, AOSpine North America;*

Introduction: GRASSP was developed to capture subtle changes in neurological impairment of the upper extremity after cervical spinal cord injury (SCI) during the acute, sub-acute, and chronic phases. Psychometric properties of reliability and validity are well established. Responsiveness testing is required to understand application of the GRASSP in clinical trials and interventional studies. Scientific Aims: 1) To develop responsiveness, and establish the sensitivity of GRASSP 2) To establish how the measure can be applied in clinical trials and interventional studies.

Methods: A prospective longitudinal study including individuals with acute tetraplegia is currently being conducted as a multi-centre/multi-national study. Serial testing consists of GRASSP, International Standards for Neurological Classification for Spinal Cord Injury (ISNCSCI), Spinal Cord Independence Measure (SCIM), Capabilities of Upper Extremity Questionnaire (CUE), Questionnaires and Life Satisfaction Survey (LISAT-11) administered 0 to 10 days, 1, 3, 6, and 12 months post injury. Analysis: A comparison of the standardized changes from baseline to each time point for GRASSP and ISNCSCI using the Freidman and Wilcoxin signed rank test will be conducted to determine amount of change captured by all measures.

Results: Sample: To date 113 patients have been enrolled (35-Can, 78-Eur), 80 (20-Can, 60-Eur) with 6 month follow-up and 55 with (Can-10, Eur-48) with 12 month follow-up. Enrollment in Europe is closed and in Canada will close in July 2012. Sub-analysis of small datasets show increased sensitivity of GRASSP in measuring the upper limb when compared to ISNCSCI across the recovery of one year

Conclusion: GRASSP Version 1.0 is a sensitive upper limb impairment measure which will be useful in clinical and research settings to assess the sensory, motor and functional changes occurring after injury. The subtleties that the measure characterizes are valuable in elucidating the underlying approaches to improve concomitant hand function and define efficacy of new interventions.

See Disclosure Index pages 43–72 / or legend on inside back cover.