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Spinal Cord Independence Measure as an effective predictor for discharge destination and mobility status in patients with spinal cord injury

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Introduction

Spinal Cord Independence Measure (SCIM) is a disability scale designed specifically for Spinal Cord Injury (SCI) patients and it is shown to be reproducible and is sensitive to changes in functional capabilities. Despite the aforesaid advantages of the SCIM, its predictive validity for discharge destination and discharge mobility status is unknown. Earlier prediction of the criteria can facilitate the discharge plan.

Objectives

The current review is to determine the predictive validity of SCIM for the discharge destination and discharge mobility status in patients with SCI.

Methodology

One hundred and fifty-seven subjects (106 male, 51 female) aged 60.1 ± 16.7 years with diagnoses of SCI in Kowloon Hospital were recruited since 2006. The mean length of stay was 128 days. SCIM was captured at admission and discharge. The discharge destination and mobility status of the patient were assessed upon discharge. Physiotherapy intervention was provided according to different abilities of the patients. To analyze training effects, paired samples t-test was used for SCIM pre-post data comparison. Receiver Operating Characteristic (ROC) Curves were used to assess both predictive validities of SCIM in respects of having the patient being discharged home and having the patient able to walk independently at discharge.

Result

At discharge, 80% subjects discharged home while 20% discharged for institutional care or transferred back to acute hospital. 58% could walk independently. SCIM was significantly improved from 39.0 ± 22.5 to 65.6 ± 25.0 ($p < 0.001$). The predictive validity of the SCIM was moderate as indicated by the area under the curve (AUC) of ROC. For criteria of discharge home, the AUC was 0.73(95%CI 0.65–0.81, $p < 0.001$) and for the criteria as independent walker, the AUC was 0.74(95%CI 0.66–0.82, $p < 0.001$).

For discharge destination, the optimal cut-off score of 29 led to a sensitivity and specificity of 0.66. Thus approximately 66% of subjects would correctly predict discharge home. For the mobility status, the optimal cut-off score of 30 led to a sensitivity of 0.71 and specificity of 0.62. Thus approximately 71% of subjects would correctly predict as independent walker. SCIM was demonstrated sufficient predictive validity for discharge destination and mobility status upon discharge. Cut-off scores of SCIM were developed.