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A three-stage evaluation of the Spinal Nutrition Screening Tool (SNST) in patients with Spinal Cord Injuries (SCI) – results from a UK multicentre validation study

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Malnutrition is both a cause and consequence of illness, particularly in vulnerable patients who have a spinal cord injury (SCI)⁽¹⁾. Data on the prevalence of malnutrition in the SCI population are lacking and SCI centres (SCIC) reported different practices in screening malnutrition⁽²⁾. A disease specific nutrition screening tool (NST): the Spinal Nutrition Screening Tool (SNST) based on eight parameters (body mass index (BMI); age; level of SCI; presence of co-morbidities; skin conditions; diet; appetite and ability to eat) has been developed⁽³⁾ for use in SCIC but its reliability and agreement with other published tools requires investigation. The aims of the present study were to assess the prevalence of malnutrition risk and the diagnostic accuracy of the SNST. After obtaining ethics approval, baseline clinical data, anthropometric measurements, NST scores, and blood biochemistry were assessed in 4 UK SCIC between July 2009–March 2010. The validity of SNST was tested by (i) comparison with full dietetic assessment (criterion validity); (ii) comparison with a generic NST: Malnutrition Universal Screening Tool⁽⁴⁾ (MUST) (concurrent validity); and (iii) an additional SNST form which was completed by the research dietitian to assess inter- and intra-rater reliability. Agreement was tested using Cohen's κ -statistics⁽⁵⁾. One hundred and fifty patients (aged 18–88, median: 44, 30.7% female) were studied on admission. Using SNST, the prevalence of undernutrition risk was 44.6% (range 27.3–64.2%) and 45% were overweight (BMI>25 kg/m²). SNST had “substantial agreement” with MUST (κ : 0.723, 95% CI: 0.607–0.839) and with dietitian assessment (κ : 0.567, 95% CI: 0.434–0.699). The SNST had moderate to substantial reliability (Inter-rater reliability: κ : 0.5, 95% CI: 0.2–0.8; Intra-rater reliability: κ : 0.64, 95% CI: 0.486–0.802). When dietetic assessment was used as a reference, SNST had similar specificity, sensitivity, and negative predictive value to MUST (76.1% v 80.4%; 85.7% v 80.4%; and 92.0% v 89.2%, respectively.) Patients at risk of undernutrition were found to have significantly reduced total protein, albumin, magnesium, creatinine, haemoglobin, BMI, appetite and significantly higher C-reactive protein; they also received more prescribed medications. The present study shows that malnutrition is common in patients with SCI. SNST is acceptable (valid and reliable), and may be a useful alternative to MUST in identifying SCI patients at risk of malnutrition. Further investigation is warranted to test its predictive validity.

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