Association of nutrition risk score and nutritional indices in patients with spinal cord injuries (SCI) – the result from a UK multi centre study

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Introduction:
Awareness of nutrition in spinal cord injuries (SCI) management has increased (Consortium of Spinal Cord Medicine, 2008, Royal College of Physician, 2009). There are limited data reporting the relationship between nutritional status and other clinical parameters in patients with SCI.

Aims and Objectives
To examine whether nutritional status classified by a validated nutrition screening tool – Malnutrition Universal Screening Tool (MUST) is associated with:
1. Biochemical indices including (i) total protein concentration, (ii). serum albumin concentration, (iii), C-reactive protein (CRP), (iv).magnesium and, (v) calcium concentration,
2. Haematological indices including (i) haemoglobin (Hb) and, (ii) white cell count (WCC),
3. Body mass index (BMI),
4. Nutrient intake recorded by food record chart ,
5. Number of medications prescribed.

Methods
Multicentre ethics approval was obtained for the study (REC: 08/H0605/83)
Study design: A prospective study was done in 3 UK SCI centres, comprise 40 % of the total SCI beds in the UK.
Each centre had its own Principal Investigator to organise and collected data longitudinally from July 2009 to Dec 2009.

Results
137 patients, who had been admitted to the SCI centre not less than 96 hours previously were assessed by a local researchers after informed consent was obtained.

87 (63.5 %) were new injury
28 (33.3 %) had a previous ITU stay prior to admission
Average age at onset of SCI was 44 (s.d. 16.5) yrs
At the time of assessment
36.5 % of patients were at risk of malnutrition (MUST ≥1);
57 % of patients were overweight (BMI >25 kg/m2)
32 % were current smoker
50 % consume alcohol regularly

When comparing the malnourished patient group with the well nourished patients group.

Malnourished patients were found to have a significantly reduced concentrations of:
(1) Albumin (29 g/L v 34 g/L, P =0.0006)
(2) Haemoglobin (11.7 g/L v 12.5 g/L, P =0.0001)
(3) Magnesium (0.8 mmol/L v 0.84 mmol/L, P =0.031)
(4) BMI (21.7 kg/m2 v 26.3 kg/m2, P =0.0000)
(5) Appetite (76.1 % v 96.3 %, P =0.008)

They had a significantly higher:
(1) CRP (28 mg/L v 16 mg/L, P =0.0008) and;
(2) received more prescribed medications (10 v 8.5, P =0.026)

Conclusions
Malnutrition is common in patients with SCI.
Malnutrition may be a risk factor for poorer outcomes and increased hospital costs.
Special attention should be given to this group of vulnerable patients.
Further research on best combination of simple clinical indices to assess nutritional status and the effects of nutritional status and clinical outcomes in SCI patients is needed.

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References are available from the presenter

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