The utilisation of the MUST nutritional screening tool on vascular surgical wards

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Abstract

Whilst malnutrition is prevalent in approximately 40% of general surgical patients, the prevalence of malnutrition and nutritional screening practices amongst vascular patients remain unknown. The Malnutrition Universal Screening Tool (MUST) is recommended for risk screening and provides 3 scores for risk classification: 0=low risk, 1=intermediate risk, 2=high risk. The aim of this preliminary study was to evaluate the use of MUST on vascular wards.

This prospective study was undertaken in a tertiary referral vascular unit in the UK. Patient demographics, utilisation of MUST by nursing staff (N-MUST) and referral to nutritional support teams (NST) were studied. When MUST was not completed by nursing staff, the study team (S-MUST) performed it.

Fifty-three patients, median (interquartile range, IQR) age 67 (59-75) years were initially studied. For N-MUST: Overall MUST score was recorded in 18/25 (72%) patients, of whom 1 (4%) scored 2, whilst the remainder scored 0. For S-MUST: Overall MUST scores were recorded in 28 patients, MUST=0 in 75% and ≥ 2 in 21%.

An educational session on use of MUST was delivered to nursing staff, as well as a Trust-wide educational initiative to improve assessment of nutritional status and, after a 2-month period, the study was repeated. The second cohort comprised forty-two patients, median (IQR) age 72 (64-79) years. For N-MUST: Overall MUST score was recorded in 37/40 (93%) patients, of whom 3 (8%) scored ≥ 2 . For S-MUST: Overall MUST scores were recorded in 2 patients, MUST = 0 in 67% and ≥ 2 in 33%.

Despite the ease of use of MUST, it was under-utilised on vascular wards. However, following provision of a dedicated educational programme to ward nursing staff, utilisation of MUST for risk scoring patients on admission increased to over 90%.

Problem

The prevalence of malnutrition in hospitalised patients is estimated at up to 40%. A previous study has demonstrated that malnutrition is prevalent among vascular patients and may influence the rate of development of septic complications. However, our clinical impression was that many vascular patients did not undergo routine nutritional screening and were not referred for nutritional support.

Background

Malnutrition has been defined by the World Health Organisation as a "cellular imbalance between supplies of nutrients and energy and the body's demand for them to ensure growth, maintenance and specific functions". (1) Malnutrition is known to have an adverse effect on outcome in surgical patients (2) and may be widely prevalent amongst vascular surgery patients leading to increased postoperative morbidity. (3,4) In 2005, the British Association for Parenteral and Enteral Nutrition (BAPEN) estimated that the annual cost of malnutrition to the UK NHS was £7.3 billion, double the cost of obesity-related problems. (5) Recent NICE guidelines recommend that all hospital inpatients should undergo nutritional screening on admission to hospital and that this screening should be repeated weekly. (6) In addition, patients should be offered

nutritional support if their BMI was ≤ 18.5 or they have lost more than 10% of body weight in last 3-6 months. In line with NICE guidance, nutrition support should be provided by coordinated multidisciplinary teams comprising doctors, dietitians, nutrition nurses, nurses, pharmacists, caterers and other allied health professionals. (6) Recent surveys have, however, identified only 80% of UK hospitals had nutrition screening tools and policies in place. (5,7) Various techniques are available for screening for malnutrition, including specialist dietetic assessment, measurements such as mid-arm circumference, hand-grip dynamometry, and specific screening tools such as Nutrition Risk Screening (NRS), Main Nutritional Assessment Short Form (MNA-SF) and Malnutrition Universal Screening Tool (MUST). (8) MUST is a five-step screening tool, designed to identify adults who are malnourished, at risk of malnutrition or obese. It also includes management guidelines which may be used to develop a care plan.

The aim of this "snapshot" study was to evaluate the current use of the MUST screening tool in vascular surgery wards.

Baseline Measurement

Over a 2-month period, admissions to vascular surgical wards based at a tertiary referral vascular unit were identified using the ward patient register. The Nottingham University Hospitals NHS

Trust vascular surgical unit serves a population of 1.5 million. Patient demographics and reasons for admission were recorded from medical and nursing notes. Where patients had undergone pre-operative assessment, the pre-op assessment documentation was appraised to determine if MUST screening was performed. The MUST tool evaluates three domains: body mass index (BMI), unplanned weight loss in the past 3-6 months and acute illness or likelihood of no nutritional intake for 5 or more days. The scores allocated to each of these domains are combined to produce the MUST score. The MUST score may then be used to classify patients as low, medium or high risk. MUST recommends that inpatients who are low risk for malnutrition (score = 0) can simply be screened again on a weekly basis. Those who are at intermediate risk (score = 1) should have their dietary intake documented and undergo regular screening. The recommendations for high risk (score = 2) individuals include referral to dietitian or nutritional support team (NST) and regular monitoring and review of the nutritional care plan. (9) Details of MUST scoring were recorded on a proforma completed by the ward nursing staff admitting the patient (N-MUST). In addition, details of specialist referrals to the nutrition team, dietitian or for special care or review of nutrition were recorded.

Design

The study team were educated in the use of the MUST tool. The second part of the study involved the study team undertaking MUST screening (S-MUST) in those patients on the vascular surgery wards who were not MUST-screened by the admitting ward nurses.

After the first audit period, an educational session on MUST was delivered to all staff working on the vascular surgical ward. This was in addition to a Trust-wide initiative aimed at improving nutritional assessment of inpatients. After a subsequent two-month period, the study was repeated in a cohort of inpatients on the vascular ward. Data are presented as median (interquartile range, IQR).

Strategy

The initial assessment of the use of the MUST tool in vascular surgical patients highlighted the fact that it was underutilised and few patients were referred for nutritional support. In the second cycle of the study, the study team, who had been educated in the use of the MUST tool, undertook nutritional screening on a group of patients who had not previously been MUST scored by ward staff. This highlighted a number of patients who required nutritional support. The study team then trained all the vascular surgical ward staff (doctors and nurses) in the use of the MUST tool and stressed that all patients should undergo MUST scoring on admission to the ward if it had not already been completed at the time of pre-operative assessment. Since conception of our study and findings from the first cohort, the educational session has now become part of the Foundation doctor induction programme and is also part of the induction for all 'new starters' on the vascular surgical wards. It has also been incorporated in a trust-wide initiative to improve nutritional screening.

Results

In the initial study cohort, 53 patients were studied, median (IQR) age 67 (59-75) years, of whom 35 (66%) were male, and 40 (76%) were elective admissions. Pre-operative assessment for elective procedures was performed in 38% of patients. Reasons for admission are shown in Table 1. In the group where MUST scores were recorded by nursing staff (N-MUST, N=25), MUST screening was performed in the pre-assessment clinic in only 1 patient (2%). For the remaining N-MUST patients, MUST score was recorded in 18/25 (72%) patients. In this subgroup, the median (IQR) BMI was 24 (22.4-26.5) kg/m². BMI score was incorrectly calculated in 6% of patients. Weight loss and acute disease score were correctly recorded in all those who were MUST screened in the N-MUST subgroup. One patient in N-MUST achieved a MUST score = 2 (high risk) and the remaining 17 patients scored 0 (low risk). No patients in this subgroup were referred for nutritional support or dietetic assessment.

For the group who were MUST scored by the study team (S-MUST), overall MUST score was recorded in 28 patients. In this subgroup, the median (IQR) BMI was 24 (22-29.7) kg/m². Weight loss was correctly recorded in all 28 patients in the S-MUST subgroup. Two patients in this subgroup achieved MUST scores of 2 or more and both were referred for nutritional support and feeding assistance. Neither patient had received additional nutritional support by the time of completion of data collection.

In the second study cohort, 42 patients were studied, median (IQR) age 72 (64-79) years, of whom 30 (71%) were male, and 25 (60%) were emergency admissions. Pre-operative assessment was performed in 37% of patients. Reasons for admission are shown in Table 1. In the N-MUST group (N=40), MUST screening was performed in the pre-assessment clinic in 1 patient (2%). In the remaining N-MUST patients, MUST score was recorded in 37/40 patients (93%). In this subgroup, the median (IQR) BMI was 25 (21.5-27.5) kg/m². BMI was incorrectly calculated in 1 patient (3%). Weight loss and acute disease score were correctly recorded in all those screened in the N-MUST subgroup. Three patients achieved MUST scores of ≥ 2 and none were referred for nutritional support or dietetic assessment.

In the second cohort, all patients were also MUST scored by the audit team to compare the scores with those obtained by N-MUST. Overall MUST score was recorded in 42 patients and weight loss was correctly recorded in all. One patient was identified in S-MUST as scoring ≥ 2 (this had been incorrectly scored in N-MUST) and a referral for nutritional support was initiated by the audit team. Additional nutritional support had not been received by the time of completion of data collection.

See supplementary file: ds2152.docx - "Table 1"

Lessons and Limitations

Despite the ease of use of the MUST tool, the results of this study have demonstrated MUST to be underutilised by vascular surgery

ward staff. Vascular patients are a co-morbid subset of patients who may be at high risk for malnutrition and developing postoperative complications. This study highlighted the importance of proper education, training and utilisation of nutrition screening tools and the need for appropriate referrals to be made and followed-up if malnutrition was identified.

After a targeted educational session, the use of MUST on vascular wards improved. However, MUST screening in pre-operative assessment clinics was still not being performed. In addition, some patients were still incorrectly scored and the referrals which should have been triggered by the MUST score were not initiated.

This study has some limitations - it was a 'snapshot' audit performed over two short periods of time on a small number of patients in one surgical speciality. However, there is little data on the prevalence of malnutrition amongst vascular surgery patients thereby justifying our interest in this cohort of patients. Additionally, the educational session had not been provided to pre-operative assessment staff and this may account for the failure of improvement in their performance.

Conclusion

The MUST screening tool was launched by BAPEN in 2003. (9) In one study, its use led to a 30-40% increase in dietetic referrals. (10) However, it has been recently criticised because chronic conditions were not classified according to severity thereby leading to an overestimation of high nutritional risk and underestimation of those at intermediate nutritional risk. (8) Despite these flaws, the major advantages of the MUST tool are that it has been shown to have content and face validity, internal consistency and predictive validity. (11) In addition, it has shown excellent reproducibility and has been shown to agree with dietitians' assessments of malnutrition. (11) Despite the ease of use of the MUST tool, the results of this study have demonstrated MUST to be underutilised by vascular surgery ward staff. Vascular patients are a co-morbid subset of patients who may be at high risk for malnutrition and developing postoperative complications. This study highlighted the importance of appropriate education and training among clinical ward staff. Furthermore, clinicians should ensure appropriate utilisation of nutrition screening tools, such as MUST, and that appropriate specialist dietetic referrals were made and followed-up if malnutrition was identified.

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Declaration of interests

Nothing to declare

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