



Contents lists available at ScienceDirect

e-SPEN, the European e-Journal of Clinical Nutrition and Metabolism

journal homepage: <http://www.elsevier.com/locate/clnu>

Original Article

Nutritional risk in hospitalised children: An assessment of two instruments

Rebecca E. Ling, Victoria Hedges, Peter B. Sullivan*

Department Of Paediatrics, Children's Hospital, University of Oxford, Oxford OX3 9DU, UK

ARTICLE INFO

Article history:

Received 10 May 2010

Accepted 11 January 2011

Keywords:

STAMP

STRONG_{KIDS}

Nutritional screening

Hospitalised children

SUMMARY

Background & aims: A child's nutritional status may deteriorate over the course of a hospital admission. No universally accepted paediatric nutritional screening tool exists. This study aimed to evaluate validity and ease of use of two new instruments, STAMP and STRONG_{KIDS}, for the assessment of nutritional risk of paediatric inpatients.

Methods: In a cross-sectional study two trained investigators applied STAMP and STRONG_{KIDS} to eligible inpatients. Demographic data, clinical information and anthropometric measurements were recorded. Correlation of assessed risk and two factors predictive of nutritional risk, anthropometric nutritional status and presence of nutritional intervention, were used to evaluate validity of the instruments.

Results: The 43 children assessed by STAMP and STRONG_{KIDS}, were assessed as: STAMP: 44% high risk, 28% medium risk and 28% low risk and STRONG_{KIDS}: 27% high risk, 49% medium risk and 24% low risk. STAMP scores correlated to anthropometric measures of chronic undernutrition (height-for-age) but not measures of acute undernutrition (BMI). STRONG_{KIDS} correlated to all anthropometric measures. For STAMP and STRONG_{KIDS}, 57% and 83% of high risk children respectively, received nutritional intervention. **Conclusions:** In terms of validity, STAMP correlates less closely to anthropometric assessment of nutritional status and identifies considerably more children receiving no nutritional intervention as high risk than STRONG_{KIDS}. Our results suggest that STRONG_{KIDS} may be a more useful paediatric nutritional screening tool but further comparative studies are required.

© 2011 European Society for Clinical Nutrition and Metabolism. Published by Elsevier Ltd. All rights reserved.

1. Introduction

A poor nutritional status in hospitalised children relates to worse clinical outcomes such as prolonged recovery times, greater requirements for high dependency or intensive care, increased complication rates, increased nosocomial infections and, at worst, death.^{1–3} There is a further negative impact on growth and development with prolonged undernutrition.⁴

Despite this knowledge, malnutrition still exists in hospitals and is often unrecognised. Recent studies of paediatric inpatients in the Netherlands and Germany have reported high prevalence of malnutrition, 19%⁵ and 24.1%⁴ respectively. The response of the Dutch government has been to require all hospitals to screen children for malnutrition. However, at present in the UK, there is no universally accepted tool for this purpose.

In the last two years, two new screening tools have been developed to address this need. Both tools can be applied at the

bedside. The Screening Tool for the Assessment of Malnutrition in Paediatrics (STAMP) was developed in Manchester, UK (www.stampscreeningtool.org, 2008). It involves a combination of two questions for the child's primary care-givers and assessment of nutritional status – height and weight. This combination of risk questions and nutritional status generates a score which corresponds to the child's risk of malnutrition (Fig. 1). This tool is currently in routine use in some centres and is applied by the nursing staff at the Children's Hospital, Oxford, UK.

The second tool, Screening Tool for Risk of Impaired Nutritional Status and Growth (STRONG_{KIDS}) was developed and tested extensively in the Netherlands.⁶ It assesses nutritional risk by asking four questions, two to be answered by the child's primary caregiver and the two to be answered by the health care professional (Fig. 2). The STRONG_{KIDS} tool has not previously been used in the UK.

The aim of this study was primarily to compare STAMP and STRONG_{KIDS} as tools to identify hospitalised children at nutritional risk ie those who will require nutritional evaluation or support during their inpatient stay. In order for a nutritional screening tool to be successful it must be valid, yield reproducible results, and be

* Corresponding author. Tel.: +44 1865 234220.

E-mail address: peter.sullivan@paediatrics.ox.ac.uk (P.B. Sullivan).

Step 1 – Diagnosis
Does the child have a diagnosis that has any nutritional implications?
Definitely – 3 points
Possibly – 2 points
No – 0 points

Step 2 – What is the child's nutritional intake?
None – 3 points
Recently decreased/ poor – 2 points
No change/ good – 0 points

Step 3 – Weight and height
Use a growth chart to determine the child's measurements
> 3 centiles apart (or weight < 2nd centile) – 3 points
> 2 centiles apart – 2 points
Similar centiles – 0 points

Step 4 – Overall risk of malnutrition
Add the scores from steps 1-3 together to calculate the overall risk of malnutrition

High risk > 4 points
Medium risk 2-3 points
Low risk 0-1 points
High Risk – Refer to a dietician, nutrition support team or consultant. Monitor and review care weekly.
Medium Risk – Monitor nutritional intake for 3 days. Repeat STAMP screening after 3 days. Amend care plan as required.
Low Risk – Continue routine clinical care. Repeat STAMP screening weekly while child is an inpatient. Amend care plan as required.

Fig. 1. The Screening Tool for the Assessment of Malnutrition in Paediatrics (STAMP).

quick and easy to use. Thus, their validity was investigated, by comparison with factors that correlate with nutritional risk, that is, nutritional status determined by anthropometry and the clinical decision to institute nutritional intervention. An additional aim was to characterise the distribution of risk across a number of variables, including age, length of hospital stay, presence of underlying diagnosis and reason for admission.

2. Methods

In a prospective cross-sectional study over two consecutive days in August 2009, both STAMP and STRONG_{KIDS} scores were determined for all eligible paediatric inpatients in the Children's Hospital, Oxford, UK. The exclusion criteria for the study were age <1 month, length of stay <1 day, height measurement could not be accurately obtained or patients on either the Paediatric Intensive Care Unit or the Day Surgery Ward. Further information was collected for each child's age, sex, race, weight, height, length of stay, reason for admission (respiratory, trauma, infection, surgical, oncological, gastro-intestinal, cardiac, neurological or other), underlying diagnosis of chronic illness and nutritional intervention (regular review by dietitians, parenteral feeding, naso-gastric feeding or naso-jejunal feeding). Comparison of the screening tools was conducted entirely separately to the children's clinical care and did not impact upon whether nutritional intervention was implemented.

The set of those identified as being at nutritional risk will contain a subset of those with measurably compromised nutritional status and, therefore, it is reasonable to use nutritional status

as a proxy marker for the accuracy of the identification of nutritional risk.

The investigator who applied STAMP was a trained dietitian; the investigator for the STRONG_{KIDS} score had also been trained in clinical assessment of nutritional status and had this evaluated with a consultant paediatrician over an additional sample of 30 children. Independent investigators were used for the two tools to prevent bias being introduced by prior knowledge of the outcome using the first screening tool. The investigators also received training from an auxologist in the accurate measurement of height. A Leicester portable stadiometer was used for those over 18 months of age, a Holtain (Crymmych, UK) supine table was used for those under this age. Measurements of weight used mechanical chair scales for children (Marsden Professional Medical) or portable electronic scales (Seca) for infants. All equipment had been recently calibrated. Each child was measured once, jointly, by the investigators. For the purpose of analysis, height and weight measurements were translated into measures reflecting nutritional state using Epi Info™. Weight for height (WFH) was calculated for those with a height <120 cm. Body mass index (BMI) was calculated for those with a height >120 cm, as 120 cm is the upper limit for the WHO tabulations for WFH. Low standard deviation scores (Z-Scores) for WFH and BMI detects acute undernutrition and height for age (HFA) detects chronic undernutrition.⁷

3. Ethical approval

As STAMP is currently employed as the tool for routine screening of nutritional risk in the Children's Hospital in Oxford the

Download English Version:

<https://daneshyari.com/en/article/2691093>

Download Persian Version:

<https://daneshyari.com/article/2691093>

[Daneshyari.com](https://daneshyari.com)