Nutrition 30 (2014) 841–846

Contents lists available at ScienceDirect

Nutrition

journal homepage: www.nutritionjrnl.com

Applied nutritional investigation

Nutritional intakes of patients at risk of pressure ulcers in the clinical setting

Shelley Roberts MNutr.Diet. [a,*], Wendy Chaboyer Ph.D. [b,c,d], Michael Leveritt Ph.D. [e], Merrilyn Banks Ph.D. [f], Ben Desbrow Ph.D. [a,c,d]

[a] School of Public Health, Gold Coast Campus, Griffith University, Southport, Queensland, Australia
[b] National Health and Medical Research Council Centre of Research Excellence in Nursing, Brisbane, Queensland, Australia
[c] Centre for Health Practice Innovation, Griffith University, Southport, Queensland, Australia
[d] Griffith Health Institute, Gold Coast Campus, Griffith Campus, Queensland, Australia
[e] The University of Queensland School of Human Movement Studies, Bathurst, New South Wales, Australia
[f] Royal Brisbane and Women's Hospital, Herston, Queensland, Australia

ARTICLE INFO

Article history:
Received 20 May 2013
Accepted 12 November 2013

Keywords:
Pressure ulcer
Nutrition
Oral intake
Hospital

ABSTRACT

Objective: Malnutrition is a risk factor for pressure ulcers. The aim of this study was to describe the energy and protein intakes of hospitalized patients at risk for pressure ulcers and to identify predictors of eating inadequately.
Methods: An observational study was conducted in four wards at two hospitals in Queensland, Australia. Adult patients with restricted mobility were observed for 24 h, and information such as oral intake and observed nutritional practices was collected. A chart audit gathered other demographic characteristics, clinical, anthropometric, and dietary information. *t* Tests or one-way analysis of variances were used to identify differences in total energy and protein intakes. Univariate and multivariate regression analyses were conducted to determine predictors of eating inadequately (i.e., intake of <75% of estimated energy and protein requirements).
Results: Mean energy and protein intakes of the 184 patients were 5917 ± 2956 kJ and 54 ± 28 g, respectively. Estimated energy and protein requirements were calculated for 93 patients. Only 45% (n = 42) and 53% (n = 49) met ≥75% of estimated energy and protein requirements, respectively. In multivariate analysis, patients on the renal ward were 4.1 and 4.6 times more likely to be eating inadequately for energy and protein, respectively ($P < 0.05$). Patients who consumed any amount of oral nutrition support were 5.1 and 15.5 times more likely be eating adequately for energy and protein, respectively ($P < 0.05$).
Conclusions: Renal patients are more likely to be eating inadequately, although any consumption of oral nutrition support seems to increase likelihood of eating adequately.
© 2014 Elsevier Inc. All rights reserved.

Introduction

Malnutrition is a common and costly problem in the hospital setting, affecting as many as 20% to 50% of patients [1,2]. Its consequences are severe and include impaired immunity, delayed recovery and healing, loss of muscle mass and function, and poorer quality of life [3]. Malnutrition increases hospital length of stay (LOS) and hospital costs among various groups of patients [4–6], and is also directly associated with the development and severity of pressure ulcers (PUs) [7,8].

SR was responsible for the conception and design of the study; collection, assembly, analysis, and interpretation of data; drafting and revision of manuscript; and approval of final version of manuscript. WC and BD were responsible for conception and design of the study; analysis and interpretation of data; drafting and revision of manuscript; and approval of the final version of the manuscript. ML and MB were responsible for interpretation of the data; drafting and revision of the manuscript; and approval of the final version of the manuscript.

The authors declare no conflict of interest.

* Corresponding author. Tel.: +61 (07) 555 27708; fax: +61 (07) 555 28042.
E-mail address: s.roberts@griffith.edu.au (S. Roberts).

0899-9007/$ - see front matter © 2014 Elsevier Inc. All rights reserved.
http://dx.doi.org/10.1016/j.nut.2013.11.019

PUs place a large burden on both the patient and the health care system. The prevalence of PUs ranges from around 5% to 30% of all hospitalized patients [7,9]. For the patient, PUs result in numerous medical complications, including increased risks for infection and mortality, and lengthy healing times [3,10]. Other problems arising from PUs include pain, discomfort, decreased mobility and independence, wound exudates and odor, and social isolation [11,12]. PUs result in severe consequences to the health care system, including increased hospital costs and LOS [13,14].

Malnutrition has been associated with at least twice the odds ratio of having a PU [7]. Mechanisms by which malnutrition increases PU risk may be related to body composition, skin and tissue integrity, and mobility [3,11,15]. Low body weight may be associated with PU as a result of an increase in bony prominences and less fat tissue to distribute pressure [11]. Malnutrition also may result in impaired skin integrity and resistance to pressure owing to decreased nutrient availability for tissue maintenance and repair [3]. Furthermore, malnutrition is associated with decreased mobility, which is an independent risk factor for PUs [3,15].

Oral or enteral nutritional supplementation in groups of older patients deemed at risk for PUs may contribute to PU prevention [16]. Although most studies have failed to reach statistical significance individually, likely because of small sample sizes, a meta-analysis found that the provision of oral or enteral nutrition support resulted in a 26% lower incidence of PUs in high-risk patients compared with routine care [16].

To our knowledge, no hospitals in Australia routinely prescribe oral nutrition support (ONS) to at-risk patients for the prevention of PUs. Given this, understanding the oral intake of patients at risk for PUs and factors determining oral intake in routine care is important if we are to ensure those at risk for PUs are eating adequately. Although investigations of dietary intakes of hospitalized patients have been conducted [17–20], to our knowledge, no studies have described nutritional intakes among a group of patients at risk for PUs. Therefore, it is unknown whether the current knowledge about the intakes of hospital patients in general can be applied to patients at risk for PUs. The aim of this study was to describe the nutritional intakes of hospitalized patients at risk for PUs, and predictors of inadequate energy and protein intakes.

Materials and methods

Study overview

A multisite, observational study was undertaken, consisting of two components: 24-h observations and chart audits. Ethical approval was gained through Queensland Health (reference no. HREC/11/QTHS/111) and Griffith University (reference no. NRS/40/11/HREC).

Setting

Data collection was conducted in four medical wards (renal, immunology, respiratory medicine, and general medicine) at two public metropolitan hospitals in Southeast Queensland, Australia. A randomized data collection schedule was used to allocate 7 d of data collection (i.e., Monday to Sunday) to each ward (28 d total) over 9 wk.

Study participants

Patients were included in the study if they met the eligibility criteria of being able to provide consent (aged over 18 y, cognitively intact); if they were at risk for pressure ulcers due to restricted mobility (i.e., use of mobility aids such as a walking stick, frame, wheelchair; or presence of mobility-restricting equipment such as IV lines, or oxygen therapy, as determined from medical notes); and hospital LOS no less than 3 d. Reduced mobility was chosen as a conservative inclusion criteria to identify patients at risk for PU, as it is a widely recognized risk factor and strong predictor of PU in the clinical setting [10,21,22]. The use of a PU risk assessment tool, such as the Braden or Norton scale, was not used to identify at-risk patients as they are shown to have insufficient predictive validity and poor reliability [23–26]. Patients could not be recruited into the study more than once. Eligible patients were provided with a participant information sheet, and informed consent was obtained from agreeable patients.

Tool development and pilot testing

The conceptual framework that underpinned data collection was developed from a review of literature and clinical experience. A number of predictor variables were identified and grouped into categories, including patient-related (e.g., self-feeding ability; comorbidies; level of mobility; and nutrition effecting symptoms such as chewing or swallowing problems, nausea, vomiting or mouth ulcers), service-related (e.g., hospital diet; dietetic input; food and supplement provision), and care delivery-related (e.g., feeding assistance; malnutrition risk assessment completion) factors. A semistructured observational tool and a chart audit tool were developed using this framework to determine the data to be collected. The tools were assessed by five clinicians and academics with expertise in this area of research. The tools were piloted and modified before data collection. Four researchers (including one author) were involved in data collection, and undertook training in the use of the data collection forms. A pilot study of 10 patients was conducted before data collection to test intra- and interrater reliability of the data collectors. Both intra- and interrater reliability were >95%.

Data collection

Data collection: Patient observations

Using a semistructured observational tool, each patient was observed for 24 h (commencing at 0700 h). Observations were performed by three data collectors across three 8-h shifts. Patients' oral intake was recorded for the 24-h duration of data collection by observing each patient's plate at the end of each meal (breakfast, lunch, and dinner). Researchers indicated the amount (none, one-fourth, one-half, three-fourths, all) of each component of a standard-sized meal consumed on the observational data form. This method of observed food intake was previously shown to be a valid and reliable method of collecting dietary intake data [19,27]. Patients' menu slips were collected to determine the specific meals and food items they received at each meal. At mid meals (morning tea, afternoon tea, supper), researchers observed patients' food and fluid intake, including any supplements consumed.

Researchers observed a number of nutrition-related practices, such as patients' ability to feed themselves; whether feeding assistance was received at meals and mid meals, and if so, who provided it; who completed the patients' menu; and whether patients were involved in their menu choice if they did not complete their own menus. Each patient also answered some brief questions regarding appetite, nutrition effecting symptoms (such as chewing and swallowing abilities, nausea, vomiting, mouth ulcers, etc.), weight history, and PU history.

Data collection: Chart audit

For each patient recruited into the study, an independent chart audit was completed (by a researcher who did not collect observational data on that patient). Information was collected from patients' medical records and bedside charts, and included patient demographic characteristics; medical information; height, weight, and body mass index (BMI) when available; serum albumin levels; hospital diet; fluid restrictions; nutrition support (oral, enteral, or parenteral); evidence of food and fluid intake and weight monitoring; and dietitian referrals and reviews.

Data analysis

Oral nutrient intake data was analyzed by an accredited practicing dietitian familiar with the food service systems of the two sites. Data was analyzed using Foodworks version 6.0 (Xyris Software, Brisbane, Australia). A database was created with food service information from both sites, including energy and protein contents of each meal component and food item. Each patient's food intake for the 24-h observation period was entered into the database, including any supplements, enteral or parenteral feeds, and foods sourced from outside the hospital. Outcome variables were total energy and protein intakes.

Patients' disease-specific estimated energy requirements (EER) and estimated protein requirements (EPR) were calculated for those patients who had adequate anthropometric and medical data available for comparison with their

Download English Version:

https://daneshyari.com/en/article/6089590

Download Persian Version:

https://daneshyari.com/article/6089590

Daneshyari.com