



Contents lists available at ScienceDirect

Clinical Nutrition ESPEN

journal homepage: <http://www.clinicalnutritionespens.com>

Original article

Barriers for nutritional care in the transition from hospital to the community among older patients



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ARTICLE INFO

Article history:

Received 26 November 2017

Accepted 2 April 2018

Keywords:

Adherence

Oral nutrition supplements

Elderly

Continuity

Nutritional care

SUMMARY

Background & aims: Data on the continuity of nutritional care in the transition from the hospital to the community is scarce although its impact on medical complications is highly significant. The aim of the current study is to determine level of adherence to dietary recommendations after hospitalization and identify barriers for adherence.

Methods: A prospective study among patients age ≥ 65 who were treated with oral nutritional supplements (ONS) during their hospitalization and discharged with dietary recommendations. Data was obtained in the hospital and at a 3-month home-visit. Adherence was assessed monthly and barriers for non-adherence were determined. Adherence levels were summed for 3 months and then divided into: 1. Full adherence: complete consumption as prescribed; 2. Partial adherence: partial consumption of the prescription [at least half]; or 3. No adherence: not consumed or less than half.

Health-status was obtained from medical records; nutritional-status using anthropometric measurements, depressive symptoms using GDS [Geriatric Depression Scale], and functional abilities using FIM [Functional Independence Measure] were determined. Dietary intake was assessed by 24-h recall.

Results: Eighty-six patients were recruited (56 women) and followed for 3-months after discharge; 47.7% were advised in their discharge letter to consume at least one liquid ONS daily, 29% daily powder ONS, and 23.3% were advised to consume both. Adherence with liquid ONS was significantly higher among both groups, $p < 0.001$. In the no-adherence group 26.7% were edentulous, BMI was lower (23.6 ± 4.2 vs. 26 ± 4.9), depression symptoms were less prevalent (45.3% vs. 61.3%), and protein intake was higher compared with the adherence group. Barriers for no-adherence were gastrointestinal symptoms, lack of knowledge of ONS purpose, and other including no prescription by the primary care physician; only 21% received a prescription for nutritional supplements. In a regression model patients who were edentulous (OR = 9.13), with more depression symptoms (OR = 5.12), or lower BMI (OR = 1.13) were significantly more likely to adhere to ONS than patients with full dentition, fewer depression symptoms, and higher BMI. Providing a prescription for ONS by a primary care physician was a significant predictor [OR = 4.7] for adherence.

Conclusions: Our results show low adherence to nutritional treatment in the community. Improving hospital-community communication is required.

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List of Abbreviations: BMI, Body Mass Index; FIM, Functional Independence Measure; GDS, Geriatric Depression Scale; HMO, Health Management Organization; ONS, Oral Nutritional Supplements; PCP, Primary Care Physician; SNAQ, Short Nutritional Assessment Questionnaire.

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<https://doi.org/10.1016/j.clnesp.2018.04.004>

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1. Background

The impact of nutritional status on length of hospitalization, readmission following hospitalization, and health complications was shown in several studies over the last two decades [1,2]. Undernourished patients were shown to have 1.5–1.7 times longer hospital stays than well-nourished patients, 16.7 ± 24.5 days vs. 10.1 ± 11.7 days, respectively [3,4]. In a 3-year prospective cohort study among 818 adults a matched case control was included. Patients were matched in diagnosis-related groups in order to rule out disease-related malnutrition. Malnutrition was evident in 29% of the inpatients and was an independent and significant predictor of poor hospitalization outcomes and survival, as well as increased costs of care [1].

In a systematic review and meta-analysis of intervention studies by Stratton et al. [5], oral nutritional supplements (ONS) [typically ready-made liquids containing energy, protein, and a range of vitamins, minerals, and trace elements] among various nutritional status patient groups showed a significant decrease of hospital (re) admissions in community and hospital-community settings. The use of ONS in the form of liquid, pudding, or powder in long-term hospitalization patients was beneficial in most of the reviewed studies [5]. In a study performed by our group we followed elderly patients for 3 months after discharge from hospitalization [6]. Three-month prospective data indicate longer hospital stay among participants at nutritional risk. Moreover, the number of readmissions to hospitalization as well as days of recurrent hospitalization were higher among the group of elderly at nutritional risk. Predictors for longer hospital stay include health status measurements such as depression symptoms, lower cognitive and functional status, as well as higher rates of nutritional problems and lower Mini Nutritional Assessment score.

Transition period [the first 3 months following hospitalization] is a susceptible point in time that puts an elderly patient at risk for nutritional and health deterioration. There is a gap in the ability to provide nutritional care in the transition from the hospital to the community. Despite the vulnerability of elderly people discharged after hospitalization or rehabilitation in a hospital setting, data regarding the continuity of care is scarce. The current study focuses on the continuity of care along 3 months following discharge, and determines the level of adherence to the dietary recommendations after hospitalization. Additionally, we explore barriers to insufficient adherence to nutritional care in order to propose future targeted intervention programs.

2. Methods

A 3-month prospective study was performed, recruiting patients over the age of 65 who are members of Maccabi Health Services HMO. *Bait Balev* is a multiunit geriatric center operated by the Maccabi Health Services, the second largest HMO in Israel. The center offers comprehensive rehabilitative services primarily for the older population. Patients admitted for rehabilitation are mostly 65 years and older, with the majority being post-acute care cases. The study population comes from a rehabilitation unit that admits both orthopedic and neurologic rehabilitation patients. Considerable overlap is seen between care requirements of orthopedic and neurologic rehabilitation patients, as both types require intensive rehabilitative intervention of medical, nursing, and paramedical staff. Average hospitalization is roughly 4 weeks for orthopedic rehabilitation and up to 3 months for neurologic rehabilitation.

Inclusion criteria comprised patients who were treated with medical nutrition supplements [liquid or powder] during their hospitalization in *Bait Balev* and were discharged to their homes with dietary recommendations [ONS] in their discharge summary.

Exclusion criteria: Patients who were discharged to a retirement home; palliative patients; patients with tube feeding; and patients who are not members of Maccabi Health Services HMO [to allow access to the medical records].

The ONS were given during hospitalization based on the following criteria: a. patients who did not reach the caloric and/or protein intake targets, b. patients with weight loss of 2% or more 6 months prior and during hospitalization, c. presence of bedsores, or d. patients who were identified by the screening tool SNAQ (Short Nutritional Assessment Questionnaire) for the elderly (age >65 years), e. laboratory analyses that primarily showed decreased visceral protein. The recommendation for ONS was based on the above criteria with additional individually tailored recommendations. These recommendations were based on the patients' needs [e.g., malnutrition], their ability and willingness to consume ONS, and their diet.

The study was approved by the Maccabi Health Services ethics committee. Patients who were willing to participate signed an informed consent. Data was obtained at baseline in the hospital and 3 months after discharge in a home visit. A comprehensive assessment by a dietitian was performed. In cases where patients were not able to answer due to cognitive impairment, we interviewed the primary caregiver while both patient and caregiver were present [8 cases]. The study dietitians conducting the home evaluation were trained for performing nutritional and functional assessment. Adherence to dietary treatment was assessed and barriers for non-adherence were determined.

3. Measurements

a. Adherence to nutritional treatment of each patient was determined and data regarding non-adherence was obtained. The dietary recommendations included ONS, in the form of liquid or powder enrichment, at discharge. The recommendations were addressed to the patient and their family and the PCP. Adherence to treatment was evaluated monthly by asking patients “Did you follow the recommendation: fully [1], partially (0.5), not at all (0)?” for each dietary recommendation in their discharge document. The maximum number of dietary recommendations was 2; thus the sum of adherence scores for each month ranges from 0, for no adherence at all, to 2, representing full compliance for 2 ONS. Adherence was calculated by number of units consumed/number of units recommended. Adherence levels were summed for 3 months and then divided into: 1. Full adherence: complete consumption as prescribed; 2. Partial adherence: partial consumption of the prescription [at least half]; or 3. No adherence: not consumed or less than half. For the sake of analyses the categories of partial and full adherence were combined to generate two categories: adherence vs. no adherence.

Barriers to non-adherence were assessed based on patient responses to adherence questions. The question was presented to the patient, asking for their reason for non-compliance, providing possible options for non-compliance. The answers were based on previous experience of the hospital dietitian along with evaluation of clarity of the questions by hospital dietitians and a sample of patients [not included in the study] and families prior to the beginning of the study. Patients could add reasons that were not included in the question. Possible options included “Gastro-intestinal problems”, “Lack of prescription by family physician”, “Did not like the taste”. Using computerized data of Maccabi HMO Primary Care Physicians [PCPs], prescription of the recommended ONS in the community was determined, thus improving accuracy of the report.

b. Health status: Data was retrieved from the computerized medical record of Maccabi Health Services HMO for each patient and the home interview. Data included: (a) number of diagnosed

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