Current Literature

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Protein-Energy Undernutrition Among Elderly Hospitalized Patients: A Prospective Study

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ABSTRACT: *Context:* Numerous studies have identified strong correlations between the severity of nutritional deficits and an increased risk of subsequent morbid events among the hospitalized elderly, but whether inadequate nutrient intake during hospitalization contributes to such nutritional deficits or the risk of adverse outcomes is not known. *Objectives:* To identify the distribution of average daily nutrient intake among the nonterminally ill hospitalized elderly, ascertain what factors contribute to persistently low intakes, and determine whether the adequacy of nutrient intake correlates with the risk of mortality. *Design:* Prospective cohort study conducted from 1994 to 1997. *Setting:* University-affiliated Department of Veterans Affairs hospital. *Patients:* A total of 497 patients 65 years or older (mean [SD] age, 74 [6] years; 97% male; 86% white) with a length of stay of 4 days or more. *Main Outcome Measures:* Daily in-hospital nutrient intake, in-hospital mortality, and 90-day mortality. *Results:* A total of 102 patients (21%) had an average daily in-hospital nutrient intake of <50% of their calculated maintenance energy requirements. Admission illness severity, average length of stay, and admission albumin and prealbumin levels for this low nutrient group did not differ significantly from those of the remaining patients. However, the low nutrient group had lower mean (SD) discharge serum total cholesterol (154 [44] mg/dL [4 [1.1] mmol/L] *vs* 173 [42] mg/dL [4.5 [1.1] mmol/L]; $p = .001$), albumin (29.1 [6.7] *vs* 33.2 [6.1] g/L, $p = .001$), and prealbumin (162 [69] *vs* 205 [68] mg/L; $p = .001$) concentrations and a higher rate of in-hospital mortality (relative risk, 8.0; 95% confidence interval, 2.8 to 22.6) and 90-day mortality (relative risk, 2.9; 95% confidence interval, 1.4 to 6.1). Contributing to the problem of inadequate nutrient intake, patients were frequently ordered to have nothing by mouth and were not fed by another route. Neither canned supplements nor nutrition support were used effectively. *Conclusions:* Throughout their hospitalization, many elderly patients were maintained on nutrient intakes far less than their estimated maintenance energy requirements, which may contribute to an increased risk of mortality. Given the difficulties reversing established nutritional deficits in the elderly, greater efforts should be made to prevent the development of such deficits during hospitalization. (JAMA 281:2013–2019, 1999)

COMMENT: A prospective, observational study was conducted on patients (n = 497) over 65 years of age who were hospitalized >4 days to determine the average daily kilocalories intake compared with maintenance energy requirements, identify factors that contributed to low intakes, and assess whether the adequacy of nutrient intake was correlated with the risk of in-hospital and 90-day mortality. Overall, 102 patients (21%) had an average nutrient intake of <50% of their estimated needs. There was no difference between the low-intake group and all other patients at admission for illness severity, albumin, or prealbumin concentrations. The low-intake group appeared better nourished at admission, as evidenced by significantly greater body mass indexes, somatic protein, and fat stores, and had better self-assessment of health compared with all other patients. At discharge, the low-intake group had lower serum total cholesterol, albumin, and prealbumin concentrations; a higher rate of in-hospital and 90-day mortality; and were more likely to be functionally dependent at discharge compared with all other patients. Inadequate energy intake was associated with frequent orders for nothing by mouth and not being fed by another route. Neither parenteral nor enteral support was used effectively.

This investigation is significant because it documents, using a prospective design with rigorous bedside assessment of nutrient intake, that despite practitioners' ability for over 30 years to provide adequate nutrition support to virtually any patient, inadequate support continues for a significant proportion of elderly patients, which is associated with an increased risk of mortality.

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A Dietitian-Delivered Group Nutrition Program Leads to Reductions in Dietary Fat, Serum Cholesterol, and Body Weight: The Worcester Area Trial for Counseling in Hyperlipidemia (WATCH)

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ABSTRACT: *Objective:* To assess the effectiveness of a dietitian-based nutrition counseling and education program for patients with hyperlipidemia. *Design:* A 4-session program implemented as a complement to a randomized physician-delivered intervention. *Subjects/Setting:* From 12 practice sites of the Fallon Clinic, 1,162 subjects with hyperlipidemia were recruited, 645 of whom had data sufficient for our primary analyses. *Intervention:* Two individual and 2 group sessions conducted over 6 weeks. *Main Outcome Measures:* Total and saturated fat levels; serum low-density lipoprotein cholesterol levels; and body weight, measured at baseline and after 1 year. *Statistical Analyses:*

Multiple linear regression was used to evaluate changes in outcome measures. *Results:* After 1 year, there were significant reductions in outcome measures for subjects attending 3 or 4 nutrition sessions *vs* subjects attending fewer than 3 sessions or those never referred to a nutrition session. Reductions (mean ± standard error) in saturated fat (measured as percent of energy) were 2.7 ± 0.5%, 2.1 ± 0.5%, and 0.3 ± 0.1%, respectively. These reductions correspond to roughly a 22% relative change from baseline in those attending 3 or 4 sessions. Corollary reductions were observed for total fat (measured as percent of energy): 8.2 ± 1.4%, 5.0 ± 1.4%, and 0.7 ± 0.4%; low-density lipoprotein cholesterol: 0.48 ± 0.11 mmol/L, 0.13 ± 0.11 mmol/L, and 0.02 ± 0.03 mmol/L; and body weight: 4.5 ± 0.9 kg, 2.1 ± 0.8 kg, and 1.1 ± 0.2 kg. The specified changes were additive to those of the physician-delivered intervention. *Applications/Conclusions:* This investigation provides empirical data demonstrating the effectiveness of a dietitian-delivered intervention in the care of patients with hyperlipidemia. (J Am Diet Assoc 99:544–552, 1999)

COMMENT: Although this study did not specifically define *dietitian*, it may be assumed in a scientific journal that the dietitians were all registered (passing the national examination after completing a comprehensive internship). Dietitians have had formal education to identify nutrition's physiologic applications to health and specific disease conditions and to counsel patients and clients on necessary dietary changes. In addition, the Worcester Area Trial for Counseling in Hyperlipidemia (WATCH) referral dietitians were required to demonstrate competencies and participate in mock group counseling sessions before the study. They were also trained to apply the health behavior model, the social learning theory, and the stages-of-change model. Because the authors saw the benefit of reinforcement of nutrition principals to promote behavioral change, the subjects were asked to attend four sessions, for a total of 5.5 contact hours via individual and group sessions. Spouses were encouraged to also attend all sessions for family support to achieve and maintain these nutritional behavior changes.

The authors point out that physicians often do not have the in-depth training in nutrition or the time to dedicate to the lengthy counseling process; therefore, the dietitian's expertise is necessary to fill this gap. Through statistical analysis of data, this study found positive results that a dietitian-based program complements physician interventions. It reported findings consistent with a previous hyperlipidemia study from McGehee et al that documented a positive relationship between the reduction in serum cholesterol levels and time spent with a registered dietitian. This complementary relationship among physician, dietitian, patient, and nutritional outcome is beneficial to decrease health care costs via medical nutrition interventions and to promote continuity of care. This particular physician–dietitian referral and counseling model may be appropriate for use in treating other nutrition-related diseases.

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Home Alone: Unmet Need for Formal Support Services Among Home Health Clients

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ABSTRACT: In order to remain in the home without family or other informal support, home health clients must have access to essential formal services such as nutrition support and homemaking chores to supplement medical and nursing care. In this study, we looked at client-related factors associated with the need for formal support services, and factors associated with whether those needs are adequately met. Data were collected from 2,013 home health clients in Massachusetts. According to the assessment of the skilled nurses treating them, 85% of the clients needed one or more support services; some or all needs were not adequately met in nearly half. Significant factors contributing to unmet need included: being non-white, having Medicaid as payer, being in a health maintenance organization, having AIDS, receiving maternal/child health services, and having an acute condition. This research suggests that even clients receiving skilled nursing care may not have many or most of their supportive needs met, and that there are identifiable factors which decrease the likelihood of having adequate care provided. (Home Health Care Serv Quart 17:1–20, 1998)

COMMENT: Using a multifaceted, multivariable design, the authors studied whether home-health client needs were identified and met, allowing clients to remain at home. Massachusetts, the study location, has a nationally recognized and well-established system of home-health services that date back before 1993, which was the study time frame. Study results demonstrated that as many as one half of the clients needing formal support services had an unmet need for one or more services. Unmet needs, in order of magnitude, included: medical equipment, home-health aide, homemaker, social work, nutrition, mental health, physical therapy, and transportation services. Factors predictive of need included: gender, minority status, having a caregiver or living with someone, age, service/diagnosis, maternal child health care, acute condition, and functional status limitations. The results of the study are important to the discharge-planning and agency-intake process. Early identification of and provision of these support services is key to keeping clients at home. Provision of such services was lacking even though the study covered a time period of increased reimbursement. The current reimbursement climate makes it more difficult to provide these support services.

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