Prognostic Factors for Mortality and Duration of Admission in Malnourished Hospitalized, Elderly Patients: A Cross-Sectional Study

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Abstract : Malnutrition in hospitalized patients is related to increased morbidity and mortality. Purpose of our study was to assess nutritional status of hospitalized, elderly patients with various nutritional scores and to detect unfavorable prognostic factors, related to increased mortality and extended duration of admission. Methods: 150 patients (78 men, 72 women, mean age 80±8.2) were included in this cross-sectional study. Nutritional status was assessed by Mini Nutritional Assessment (MNA full, short-form), Malnutrition Universal Screening Tool (MUST) and short Nutritional Appetite Questionnaire (sNAQ). The following data were incorporated in analysis: Anthropometric and laboratory data, physical activity (International Physical Activity Questionnaires, IPAQ), smoking status, dietary habits and mediterranean diet (assessed by MedDiet score), cause and duration of current admission, medical history (co-morbidities, previous admissions). Primary endpoints were the mortality (from admission until 6 months afterwards) and duration of admission, compared to national guidelines for closed consolidated medical expenses. Mann-Whitney two-sample statistics or t-test was used for group comparisons and Spearman or Pearson coefficients for testing correlation between variables. Results: Normal nutrition was assessed in 54/150 (36%), 92/150 (61.3%) and in 106/150 (70.7%) of patients, according to full MNA, MUST and sNAQ questionnaires respectively. Mortality rate was 20.7% (31/150 patients). The patients who died until 6 months after admission had lower BMI (24±4.4 vs 26±4.8, p=0.04) and albumin levels (2.9±0.7 vs 3.4±0.7, p=0.002), significantly lower full MNA (14.5±7.3 vs 20.7±6, p<0.0001) and short-form MNA scores (7.3±4.2 vs 10.5±3.4, p=0.0002) compared to non-dead one. In contrast, the aforementioned patients had higher MUST (2.5±1.8 vs 0.5±1.02, p=<0.0001) and sNAQ scores (2.9±2.4 vs 1.1±1.3, p<0.0001). Additionally, they showed significantly lower MedDiet (23.5±4.3 vs 31.1±5.6, p<0.0001) and IPAQ scores (37.2±156.2 vs 516.5±1241.7, p<0.0001) compared to remaining one. These patients had extended hospitalization [5 (0-13) days vs 0 (-1-3) days, p=0.001]. Patients who admitted due to cancer depicted higher mortality rate (10/13, 77%), compared to those who admitted due to infections (12/73, 18%), stroke (4/15, 27%) or other causes (4/49, 8%) (p<0.0001). Extension of hospitalization was negatively correlated to both full (Spearman r=-0.35, p<0.0001) and short-form MNA (Spearman r=-0.33, p<0.0001) and positively correlated to MUST (Spearman r=0.34, p<0.0001) and sNAQ (Spearman r=0.3, p=0.0002). Additionally, the extension was inversely related to MedDiet score (Spearman r=-0.35, p<0.0001), IPAQ score (Spearman r=-0.34, p<0.0001), albumin levels (Pearson r=-0.36, p<0.0001), Ht (Pearson r=-0.2, p=0.02) and Hb (Pearson r=-0.18, p=0.02). Conclusion: A great proportion of elderly, hospitalized patients are malnourished or at risk of malnutrition. All nutritional scores, physical activity and albumin are significantly related to mortality and increased hospitalization.

Keywords : dietary habits, duration of admission, malnutrition, prognostic factors for mortality