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Malnutrition risk screening and clinical outcomes: A review of 40,105 patients at North District Hospital

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Introduction

Undernutrition is very common in hospitalized patients. Studies suggest that about 20%-50% hospitalized patient is malnourished. Poor nutritional status in patients has been related to increasing complications, length of stay, mortality, and healthcare cost. North District Hospital introduced nutritional screening service since 2012. All patients are screened by Malnutrition Screening Tool (MST) upon admission. The routine use of a nutrition screening is recommended for timely intervention to obtain desirable nutrition and clinical outcomes.

Objectives

The aims of this review are to investigate the prevalence of malnutrition in inpatients at a local acute district hospital and to evaluate the association between nutritional risk status and clinical outcomes namely the length of stay, the 28-day emergency readmission rate after discharge, and the episode of death.

Methodology

Adult inpatients records with malnutrition screening completed upon admission were retrieved from the Clinical Data Analysis and Reporting System (CDARS) during the admission period from 1st Jan 2016 to 31st Dec 2016. Patients under the age of 18-year-old were excluded in this review. A total number of 40,105 adult inpatient records were extracted from 40,367 inpatient records for nutritional and outcomes analysis. All patients came from 4 specialties including Medical, Surgical, Orthopedic, and Accident & Emergency. Prevalence of malnutrition risk was investigated. Length of stay (LOS), 28-day emergency readmission rate after discharge, and the episode of death were compared between 2 groups, namely the "low risk" group (MST0-1, n 3,6417) and the "at risk" group (MST \geq 2, n 3688). Independent T-Test and Pearson Chi-Square Test were used to analyze the outcomes.

Result

The mean age is 64.9 ± 18.5 -year-old, and the age range is from 18 to 109-year-old. There are 18,449 females and 21,656 males, representing 46% and 54% of the whole population respectively. The prevalence of these 40,105 patients at malnutrition risk is 9.2%, of which 4.5% are at medium risk, and 4.7% are at high malnutrition risk. The LOS of the "at risk" group is 64.2% higher than the "low risk" group. The LOS of the "low risk" group is 4.2 ± 6.5 days, and the LOS of the "at risk" group is 6.9 ± 10.0 days (p-value < 0.01 , 95% CI -2.97 to -2.50). The emergency readmission rates within 28 days after discharge for the "low risk" and the "at risk" groups are 14.6% and 25.1% respectively with an odds ratio (OR) of 2.0. There is a significant difference in readmission rate between 2 groups ($\chi(1)=280.43$, p-value < 0.01). The episode of the death of the "low risk" and "at risk" groups are 2.3% and 8.5% respectively with an OR of 3.9. There is a significant difference in the episode of death between 2 groups ($\chi(1)=445.89$, p-value < 0.01). This review shows that patient at malnutrition risk is more prone to have a longer length of stay, higher emergency readmission rate, and mortality rate compared to low malnutrition risk patient.