Research Article

Nutrition Screening of Elderly Patients Hospitalized in Tertiary Care Hospitals in Lahore by using MUST

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Abstract

Reasons of malnutrition are decreased food intake and appetite due to illness gastrointestinal symptoms, compromised ability to chew or swallow (dysphagia), Nil per os (NPO) status for diagnostic and therapeutic procedures. A cross-sectional study was conducted in tertiary care hospitals of Lahore. The point prevalence of malnutrition was determined by using MUST. Patients who were terminally ill were excluded from study. Demographic features including name, age, social status and diseased condition was recorded. Other possible methods were adopted to assess weight and height for those patients who were unable to stand. Nutritional intake of patient was assessed for past 5 days which would be related to the acute disease effect score. History of weight loss for past 3-6 months was recorded. By using data, scores were determined for BMI, weight loss and acute disease effect. On the basis of total score, patients were categorized in low, medium and high risk for malnutrition. 56.3% patients were at high risk of malnutrition and only 14% patients had normal BMI score. 58.4% patients had >10% and 28.1% patients had 5-10% unintentional weight loss in past 3-6 months. Energy and protein intake increased after nutrition education. Average protein intake increased from 0.65 g/kg/day to 1.29 g/kg/day. The MUST was an easy and effective method to define the point prevalence of malnutrition in Pakistani patients Moreover, system-wide screening method can bring the best practices in nutrition care by involving stakeholders and decision makers in addressing any shortcomings in nutrition care and in forming baseline for future nutritional interventions.

Keywords: Nutrition Screening; Lahore; MUST (Malnutrition Universal Screening Tool)

Introduction

The World Health Organization (WHO) defines malnutrition as "the cellular imbalance between the supply of nutrients and energy and the body's demand for them to ensure growth, maintenance, and specific functions" [1]. An imbalance between nutrient intake and its requirements which results in cumulative deficiency of energy, protein and micronutrients is termed as malnutrition. It may be occur due to presence of illness or due to environment or behavioral factors which may be led towards decreased nutrient intake or absorption and sometimes both. Malnutrition causes an increased burden of disease on the economy and also results in negative outcomes on patient too. The unfortunate outcomes include prolonged hospital stay, increased risk of infections, poor wound healing and increased readmissions [2]. Hospitalized patients are at increased risk to develop malnutrition (32-50%) [3] because of decreased food intake due to decreased appetite, gastrointestinal symptoms, compromised ability to chew or swallow (dysphagia), or nil per so (NPO) status for diagnostic and therapeutic procedures. Additionally, patients may have increased energy, protein, and essential micronutrient needs because of inflammation, infection, or other catabolic conditions [4].

Screening for malnutrition at the time of admission in the hospital or at the beginning of the illness helps in early detection of nutrition related illness and better response towards intervention [5]. Therefore It is important to have diagnostic tools that can diagnose malnutrition or the risk of malnutrition with sensitivity and specificity so that interventions could be given timely [6]. MUST (Malnutrition Universal Screening Tool), SGA (Subjective Global Assessment), MNA (Mini Nutritional Assessment) and NRS (Nutritional Risk Screening 2002) are the assessment tools which have been commonly used for malnutrition screening. MUST test basically focus on 3 parts, BMI, weight loss with the passage of time and presence of acute disease among those who have decreased intake of food for more than five days. The Malnutrition Universal Screening Tool (MUST) Classify malnutrition as low, medium and high on the basis of three components which are BMI, unexplained weight loss history and presence of acute illness and its effect. It was developed for the community use where it predicts the rate of hospital admission, length of hospital stay, mortality in elderly wards and requirement of general physicians visit [7,8]. It has been compared with other screening tools and found best and the fastest one among the others [9].

In countries like Pakistan, where basic health care system is insufficient, tertiary care hospitals are scarce and health facilities are compromised, it becomes a dire need to assess the drawbacks in existing hospital care. The purpose of this study was to demonstrate that patient screening is easy to carry out and its administration can be helpful in improving the health outcomes, minimizing resources utilization and eventually decreasing economic disease burden. The results of this study can serve as a starting point for understanding the necessity to introduce system-wide nutrition screening and monitoring of the nutritional status among malnourished patients in hospitals of Pakistan [10].

Material and Methods
Study design

A descriptive cross-sectional survey was conducted at different hospitals of Lahore, Pakistan by using both qualitative and quantitative research methods. Both research methods include structured interviews with patients. This study was conducted on elderly patients hospitalized in Lahore.

Sample size

The sample size of the study was calculated by keeping the confidence level at 95% (1.96), margin of error at 5% and assumes a population proportion is 0.5, by keeping in mind the above assumptions the sample size calculated was 384 adult patients.

$n = z^2 x \acute{\rho} (1 - \acute{\rho}) / e^2$

$n = 1.96^2 x 0.5 (1 - o.5) / 0.05^2$

$= 384.16$

Study site

The study was conducted in Lahore's "Gulab Devi Chest Hospital and Pakistan Kidney and Liver Institute and Research Center". The study population was elderly hospitalized patients' ≥ 60 years of age.

Study oversight

The study was approved by the Department of Food Science and Human Nutrition, University of Veterinary and Animal Sciences, Lahore.

Tools for data collection

A semi-structured questionnaire was developed and data regarding elderly patients' demographic features, anthropometric measurements, and dietary recall was documented. Study topic was introduced and explained to patients and interview technique was used to fill the questionnaire. Anthropometric measurements were taken by using standard approaches, weight and height readings were taken using a battery-powered digital precision weighing scale Seca 703 and Seca 216 portable stadiometer. Bodyweight and height was measured without any footwear. The 24-hour dietary recall was taken. Malnutrition Universal Screening Tool was particularly drafted to be used by a non-nutrition trained staff. It is a simple 3 step tool to assess patients who are malnourished along with the patients at risk of being malnourished. These steps include assessing the BMI, weight loss score and the acute disease effect score of the patient. MUST scores were developed by Malnutrition Advisory Group of the British Association of Parenteral and Enteral Nutrition.

Data collection

The study was conducted under the supervision of an experienced dietitian. Patients of 60 years or above who were ambulatory were a part of this study. Patients who were terminally ill, bedridden, severe burn, suffering from chronic kidney failure, on dialysis or having edema or ascites and admitted in CCU or ICU were excluded from study. Demographic features including name, age, social status, and diseased condition were recorded. The patient's height and weight were measured to assess body mass index. Other possible methods were used to assess weight and height, in case, when patient was unable to stand. Nutritional intake of patient was assessed for past 5 days which would be related to the acute disease effect score. History of weight loss for past 3-6 months was also recorded. Using the recorded data, scores were determined for BMI, weight loss and acute disease effect. The total score was calculated. On the basis of total score, patients were categorized in low, medium and high risk for malnutrition.

Ethical approval

Prior ethical approval was taken from the respective hospitals. Ethical approval was obtained from the Institutional Review Committee for Biomedical Research of University of Veterinary and Animal Sciences, Lahore was also obtained.

Figure 1: Screening of patients using MUST.

Results and Discussion

385 paptients were scrnened using MUST. Number of patients registered in the study according to the type of disease is given in

figure 2. According to the MUST scoring almost all of the patients were at risk of malnutrition. 48.7% patients had BMI lower than 18.5. 44.3% (n=170) patients had 5-10% unintentional weight loss in past 3-6 month. Table 1 is illustrating the nutritional parameters screened by using MUST. Risk of malnutrition increases many folds in disease conditions and malnutrition contributes to longer stay in hospitals, especially in older patients [11]. Due to prolonged hospital stay there is an elevated economic burden on one's family and also on government, chances of readmission of patients in hospitals increases. Different cost analysis studies proved that if nutrition screening made mandatory in hospitals cost benefits as well as therapeutic benefits can be achieved simultaneously [12]. According to the guidelines of ESPEN nutrition screening is a predicting tool which can help to analyze weather the patients should be given nutritional treatment along with the disease treatment or not [8]. MUST helps in foreseeing the disease impact on nutritional health of the elderly patients and also helps in screening the patients who are at risk of malnutrition, studies suggests that there should be nutritional screening of all hospitalized patients [13]. Unintentional weight loss and malnutrition always go side by side, unintentional weight loss in previous 3-6 months aids in predicting risk of malnutrition [14]. Only relying of BMI for screening the risk of malnutrition is not enough, there are many studies which suggest that unintentional weight loss is more suitable too in predicting the risk of malnutrition as compared to BMI in many disease conditions. Reason for the non-reliable BMI results in assessing the risk of malnutrition can be due to fluid retention in patients which can give false weight measures.
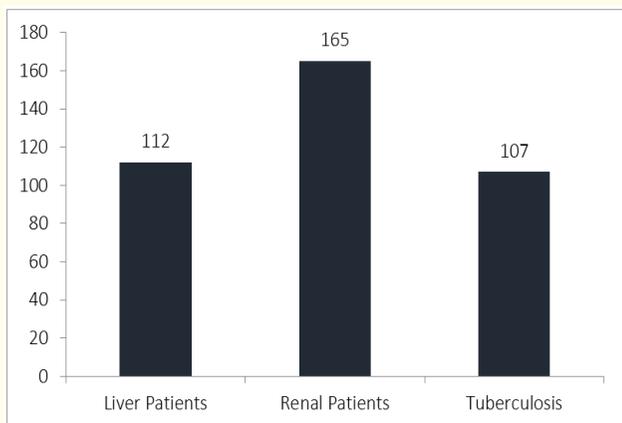
Nutritional Parameters (MUST Scoring)	Sample (n=384)	Percentage (%)
Gender		
Females	107	28%
Males	277	72%
Risk of Malnutrition (BMI)		
Score 2 (<18.5)	216	56.3%
Score 1 (18.5-20)	114	29.7%
Score 0 (>20)	54	14%
Unintentional Weight loss (3-6 months)		
Score 2 (>10%)	194	50.4%
Score 1 (5-10%)	108	28.1%
Score 0 (<5%)	82	21.5%
Acute Disease Effect		
Score 2 (NPO>5 days)	130	33.9%

Table 1: Shows the scoring of nutritional parameters of 384 patients by using MUST. Score 2 was given to the high risk of malnutrition.

intake can be because of many underlying factors i.e. severity of disease, absence of dietetic supervision, lack of nutritional care and nutritional assessment.
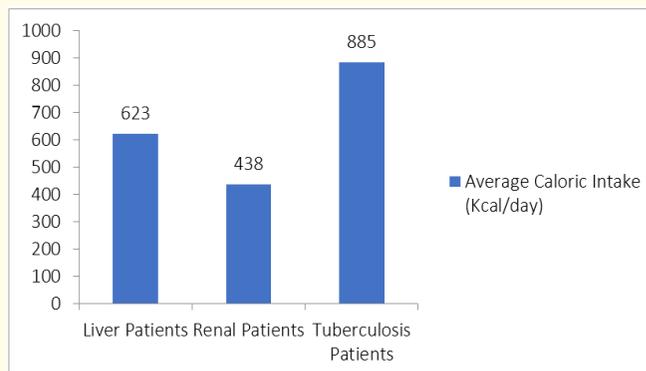

Figure 3: Illustrates the average intake of calories in liver, renal and tuberculosis patients.

Figure 2: Shows 112 liver patients, 165 renal patients and 107 patients suffering from tuberculosis were screened using MUST.

Figure 3 shows the average intake of calories in patients. The average caloric intake of patients was 623Kcal/day in liver patients, renal patients had average caloric intake of 438kcal/day and the highest caloric intake recorded in the study was in tuberculosis patients (885Kcal/day). It was observed that average caloric intake by patients is severely below than the recommended intake. Similar findings were given by [15,16]. Reduction in caloric

Average caloric and protein intake increased after nutrition education. Table 2 shows the average protein intake and average caloric intake in liver, renal and tuberculosis patients before and after nutrition education. Protein intake of hospitalized patients was low. Patients leave every form of proteins from their diet in disease conditions, unawareness, and poor hospital facilities. Proteins are directly linked with malnutrition and delay the recovery period in patients. After nutrition education caloric and protein intake of patients got better. Patients took proteins in their diet and increased their daily calorie intake. In past, there are a number of studies which gave the similar results [17,18].

Conclusion

Malnutrition is prevalent in hospitalized elderly patients. The protein intake and caloric intake in a day by patients was very poor in patients. High risk of malnutrition and unintentional was prevalent in elderly patients. Recovery was delayed in these hospitals. Caloric intake and protein intake was very low in patients. After nutrition education caloric and protein intake of patients got better.

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Conflict of Interest

Authors described no conflict of interest.

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