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Original Article

Mini Nutritional Assessment (MNA) of Elderly Hospitalized Patients undergoing Urological Surgery

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Abstract

Background: Malnutrition in hospitalized elderly patients is common and often unrecognized. Undernourished elderly tend to have longer periods of illness, longer hospital stay, higher rate of infections, delayed wound healing, reduced appetite and increased mortality rates. Nutrition screening is the first step in identifying individuals at nutritional risk and with malnutrition. 'Mini Nutritional Assessment' (MNA) screening tool has been used in different settings to screen elderly for risk of nutrition deficiency. The MNA is an 18-item tool comprising anthropometric measurements combined with a questionnaire regarding dietary intake, a global assessment and a self-assessment. **Aims:** This purpose of the study among the elderly patients admitted for urological surgery is to find those who are malnourished and at risk for malnutrition. **Materials and methods:** The study is carried out at a public referral hospital for nephro-urological conditions on patients aged 60 yrs and above who were admitted for urological surgery. Patients were screened on admission by MNA screening tool and identified as having adequate nutrition status (MNA score >23.5), at nutritional risk (17- 23.5) and with malnutrition (score <17). **Results:** The mean age of the 120 elderly patients studied was 65.4 ± 5.3 yrs and the mean BMI was 19.4 ± 2.17. Of them 7.5% were found to be malnourished and 52.5% were at risk of malnutrition. **Conclusion:** The findings highlight the need for routine nutritional screening of hospitalized elderly surgical patients and for a nutrition intervention for the malnourished and to those at risk for malnutrition.

Key words: elderly, urological surgery, MNA, nutrition assessment, geriatric.

Introduction

The risk of malnutrition increases in the hospitalized elderly. Malnourished patients tend to have longer hospital stays and more surgical complications. Those with malnutrition are also likely to have poor appetite, lower cognitive and physical functioning and lower body mass index compared to those with risk of malnutrition. Malnutrition is reported in 30-50% of hospitalized patients. Also a significant proportion of the hospitalized patients develop malnutrition after admission.[1-3]

Nutrition screening is a first step to identify individuals at risk for malnutrition and those at nutritional risk. Many screening methods are being used in different settings to screen elderly people for nutrition risk such as subjective global assessment; anthropometric measurements such as weight, body mass index, fat percentage, triceps skinfold thickness and mid-arm circumference; and biochemical measurements such as serum albumin, total protein, haemoglobin, creatinine, and potassium.[4]

Mini Nutritional Assessment (MNA) tool is being used in different settings to screen the elderly for nutrition risk. The MNA is a screening and assessment tool with a scale usable by health care professionals. The MNA tool is being recommended to be included in the geriatric assessment as it provides a simple and quick method of identifying elderly patients at risk for malnutrition and those who are already malnourished.[5,6] The tool allows clinicians to intervene early to provide adequate nutritional support, prevent further deterioration and improve patient outcomes.[7]

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Nutritional assessment, management of nutrition deficiencies and the diet of elderly hospitalized patient are generally neglected.[8] Data regarding the nutritional risk of the elderly patients hospitalized for surgery are sparse in Indian settings. This study was conducted with the objective of determining the occurrence of malnutrition among the elderly patients hospitalized with urological conditions by using MNA tool.

Materials and methods

The study was undertaken at a nephro-urology referral public hospital in Bengaluru on 120 elderly patients. Male patients aged 60 yrs and above who were admitted for management of urological problems during the period of June to August 2008 were studied by a simple cross-sectional approach. MNA tool consisting of 18-item questionnaire was used.

Table 1. MNA tool

Variables	Score
Has food intake declined?	0,1,2
Weight loss in the last 3 months	0,1,2,3
Mobility	0,1,2
Psychological stress or acute disease	0,2
Neuropsychological problems	0,1,2
BMI	0,1,2,3
Lives independently	0,1
Takes 3 or more drugs per day	0,1
How many full meals daily?	0,1,2
Pressure sores	0,1
Consumption of Protein foods	0,0.5,1
Fruits / vegetables per day?	0, 1
How much fluid consumed per day?	0,0.5,1
Mode of feeding	0,1,2
Self view of nutritional status	0,1,2
Patients rating of health status?	0,0.5,1,2
Mid-arm circumference in cm	0,0.5,1
Calf circumference in cm	0,1

The tool comprised of anthropometric measurements namely BMI, mid-arm and calf circumference, and weight loss; questionnaire on dietary intake namely number of meals consumed, food and fluid intake, and feeding autonomy; a global assessment by lifestyle, medication, mobility, presence of acute stress, and presence of dementia or depression; and a self-assessment through self-perception of health and nutrition (table. 1).

Measurement of height was obtained by a stadiometer with an accuracy of 0.5 cms, weight by a bathroom scale with an accuracy of 250 gms and circumference of mid-arm and calf with a flexible measuring tape in cms with an accuracy of 0.1 cms. Scores of 0, 0.5, 1, 2 or 3 were given based on the observations of the variables under MNA tool. The total MNA score obtained for each patient was categorized into >23.5, 17-23.5 and <17 which was interpreted as adequately nourished, at nutrition risk and malnutrition respectively.[5,6,9,10]

Results

The characteristics of the elderly patients, anthropometry and clinical condition is summarized in (table. 2). On assessing the nutritional state of the hospitalized elderly patients using MNA tool 7.5% were malnourished and 52.5% were at risk of malnutrition (table. 3)

Table 2. Characteristics of elderly patients with urological problems

Characteristics	Values
Number of patients	120
Age in yrs (Mean ± SD)	65.4 ± 5.33
BMI (Mean ± SD)	19.4 ± 2.17
Marital status	**No (%)**
Married	105 (87.5)
Widower	015 (12.5)
Urological conditions	**No (%)**
BPH	45 (37.5)
Stricture urethra	31 (25.8)
Renal calculi	17 (14.2)
Cancer bladder	05 (04.2)
Others	22 (18.3)

Discussion

On nutritional screening with MNA tool the rate of malnutrition in the hospitalized elderly patients was found to be 7.5% and 52.5% were at risk of malnutrition. A similar pattern of nourishment based on MNA tool is seen in out-patient and home care for elderly (25 studies, n=3119) with prevalence of undernutrition of 9% (range 0-30%) and risk of

malnutrition of 45% (range 8-65%). Whereas a high prevalence of under nutrition has been reported in elderly patients at 23% (range 1-74%) in hospitals (35 studies, n= 8596) and 21% (range 5-71%) in institutions (32 studies, n=6821 elderly). An even higher prevalence of risk of malnutrition was observed in the same population with 46% (range 8-63) and 51% (range 27-70), respectively.[5] Twenty-four pooled data sets of elderly people based on information collected from full MNA forms from 12 countries were analyzed. The overall prevalence of malnutrition was 22.8%. The malnutrition rate was 38.7% among the hospitalized elderly patients, 50.5% in the rehabilitation centres and 5.8% in the community.[11]

Table 3. Malnutrition indicator score of elderly patients with urological problems

Nutrition status	MNA score	No (%)
Adequate	>23.5	48 (40.0)
At nutritional risk	17 - 23.5	63 (52.5)
Malnutrition	<17	09 (07.5)

The variations of nutrition status in the elderly of the present study when compared with the elderly from other studies conducted in different settings could be due to differences in their health status and the level of dependence among the elderly. In hospitalized elderly patients a low MNA score is likely to be associated with an increased mortality and prolonged length of stay. In the elderly malnourishment is associated with difficulties in eating and functional and cognitive impairment.

Nutrition screening is the process of identifying those characteristics which are known to be associated with dietary or nutritional problems. It identifies those who have nutrition problems and also those at risk for nutrition deficiencies. After screening, those patients with malnutrition or at risk for malnourishment should be assessed in detail by clinicians for metabolic, nutritional and functional variables. Based on the quick nutrition screening of hospitalized patients the treatment intervention for malnutrition and those at risk for malnutrition should be planned. The nutrition therapy should ideally reduce the complications of the diseases and its treatment, should accelerate the recovery from the disease, reduce the length of hospital stay and should improve and prevent the deterioration of physical and mental functions. Many nutritional intervention studies show that timely intervention can stop weight loss in elderly at risk of malnutrition or undernourished and are associated with improvements in MNA scores. The MNA can also be used as a follow up assessment tool.[7]

The full MNA is a validated nutrition screening and assessment tool that can identify geriatric persons aged 65 years and above who are malnourished or at risk of malnutrition. Validity refers to whether a tool actually assesses what it purports to measure. A validation study on the full MNA showed a sensitivity of 96% and specificity of 98%.[9] The MNA tool used for the present study is the one which originally comprised 18 questions. However of late MNA consists of 6 questions and this short form is said to have retained the validity and accuracy of the original MNA tool in identifying older adults who are malnourished or at risk of malnutrition.[10] Guided by the MNA score, the clinician implements the nutrition care by referring the patient with a lower score to a dietitian for a full nutrition assessment. Specific nutrition diagnosis should be followed by specific nutrition interventions and follow-up.

Conclusion

Elderly hospitalized patients are at risk for malnutrition. The findings highlight the need for routine nutritional screening among hospitalized elderly surgical patients and for a nutrition intervention for the malnourished and to those at risk for malnutrition. The MNA is a simple screening and assessment tool that can be used to identify elderly patients at risk of malnutrition.

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