

---

## MALNUTRITION IN SURGICAL PATIENTS ADMITTED TO BASRA GENERAL HOSPITAL

**Salim Mahdi Albassam**

MB,ChB, DS, CABS, Assistant Professor, Department of Surgery, College of Medicine, University of Basra, IRAQ.

### Abstract

This study aimed to investigate and assess the nutritional status of patients admitted to the general surgery wards and define the correlation between the risk of malnutrition, hospital course, clinical outcome, any coexistence between malnutrition and obesity in adult surgical patients and to correlate between two systems used in the assessment of malnutrition.

This is a cross sectional study done between December 2012-April 2013, on 214 patients, randomly selected admitted to public and private surgical wards in Basra General Hospital. They underwent two screening tools; the Malnutrition Universal Screening Tool (MUST) and Malnutrition Screening Tool (MST). The 214 patients were divided into two groups, both were included in the two validated screening tools for identification of the risk of malnutrition.

Patients who were at risk of malnutrition in the private wards in the MST group were 6 out of 43(13.9%) while in the public ward were 10 out of 64 (15.6%). Regarding the MUST risk score in the private wards, there were 11 patients in the medium and high scores out of 54 patients(20.3%) while in the public wards were 7 out of 53(13.2%).

In the MST group, there were 7 positive females out of 58(12%) and males were 9 out of 49(18.3%). In the MUST group, 7 out of 53(13.2%) females were positive and 11 of 54(20.3%). In the MST group, there were 2 positive <30 patients out of 30(6.6%) and 10 patients (30-60) out of 62(16.1%) and above 60 years were 4 out of 15(26.6%). Regarding the MUST group, there were 3 patients at positive risk in <30 y out of 17(17.6%) and in 30-60 y they were 9 out of 69(13%) and in above 60 y they were 6 out of 21(28.5%).

The MUST tool depends on BMI in its scoring. The results of this study showed there was not even a single patient with BMI <18.5 and the majority of the patients were either overweight or obese.

In conclusion, the prevalence of under nourishment in the surgical inpatients in this trial is low; there is slight difference in the prevalence of malnutrition risk between MST and MUST. Malnutrition according to BMI is rare in patients included in MUST, over weight and obesity are the main problems in this study not the malnutrition. Patients with positive risk of malnourishment are not malnourished primarily but influenced by their diseases.

---

### Introduction

**M**alnutrition is any nutritional disorder that results from unbalanced, insufficient diet, defective assimilation or utilization of the food<sup>1-3</sup>, and according to World Health Organization(WHO) is the body mass index (BMI) less than 18.49 kg/m<sup>2</sup><sup>4</sup>. Malnutrition within hospital inpatients is usually not diagnosed, 40% of patients in surgical wards were undernourished<sup>5</sup>.

The risk of malnutrition is increased during hospital stay<sup>6-8</sup> and 70-80% of

those malnourished patients were not identified. No action is taken during their admission days and therefore malnourishment state was not mentioned on their discharge paper.

Malnutrition screening tools were; Malnutrition Screening Tool (MST)<sup>9</sup> which depends on subjective data with two parameters including weight and appetite. Malnutrition Universal Screening Tool (MUST)<sup>10-12</sup> depends on objective data with three parameters

including BMI, weight loss and the influence of the disease on malnutrition.

The aim of this study is to assess the nutritional status of patients admitted to the general surgery wards and define the correlation between the risk of

malnutrition, any coexistence between malnutrition and obesity in adult surgical patients and to correlate between two systems used in the assessment of malnutrition.

### Patients & Methods

Two hundred and fourteen randomly selected patients admitted to public and private surgical wards from both genders, divided into two equal groups were included in two validated screening tools for identification of risk of malnutrition.

Patients were excluded from this study if they had been inpatients less than one day or they were discharged on the day of the study. Patients participating in this study were admitted to the surgical wards for diseases listed in table I.

**Table I: Type of diseases in patients included in this study.**

Type of disease	No.
acute abdomen	5
Anorectal diseases	12
breast diseases	5
diseases of the bowel	23
hepatobilliary diseases	26
hernias	7
pancreatic diseases	7
stomach diseases	3
thyroid diseases	3
Others	16
<b>Total</b>	<b>107</b>

This study was done by one consultant, three house officers and two nurses using

the following screening tools shown in table II.

### Results

The results of this study showed that there was no significant difference between private and public wards scoring systems. Patients who were at risk of malnutrition in the private wards in the MST group were 6 out of 43(13.9%) while in the public ward were 10 out of

64 (15.6%). Regarding the MUST risk score in the private wards, there were 11 patients in the medium and high scores out of 54 patients (20.3%) while in the public wards were 7 out of 53(13.2%) as demonstrated in table III.

Regarding gender, table IV demonstrates that no significant difference in the malnutrition between females and males. In the MST group, there were 7 positive females out of 58 (12%) and the males

were 9 out of 49 (18.3%). In the MUST group, 7 out of 53 (13.2%) females were positive and 11 of 54 (20.3%) male were positive.

**Table II: Malnutrition Screening Tools.**

Tool	Parameters used	Target population
Malnutrition Screening Tool (MST) <sup>(9)</sup> .	Subjective data, two parameters, weight and appetite. A: Recent unintentional weight loss yes or no, yes=2, no=0. How much, 1-5=1, 6-10=2, 11-15=3, more than 15=4. B: Decrease appetite yes or no, yes= 2, no=0. Summed score of more than 2 is positive for nutritional risk.	Adult hospital patients in general surgery wards.
Malnutrition Universal Screening Tool (MUST) <sup>(10-12)</sup>	Mainly objective data. Three parameters: A. Body mass index (BMI), more than 20kg/m <sup>2</sup> =0. 18.5- 20kg/m <sup>2</sup> =1 Less than 18.5kg/m <sup>2</sup> =2. (A women should have an index of 20,21, and a man of 20.5, 22, 23.5 according to size of frame (Small, medium or large). BMI of 25-30kg/m <sup>2</sup> represent over weight, more than 30kg/m <sup>2</sup> is obesity, B. Weight loss: Less than 5%=0. Between 5-10%= 1. More than 10%=2. C. Acute disease effect: The influence of the disease on malnutrition Absent= 0. Present (or very little nutritional intake more than 5 days) = 2. Overall risk of malnutrition relay on total score: Low risk=0. Medium risk= 1. High risk= 2.	All adult hospital patients in general surgery wards.

**Table III: Comparison between MST & MUST scores regarding the ward**

		MST Score			MUST Risk Score			
		Score<2	Score>2	Total	Low	Medium	High	Total
Ward	Private	37	6	43	43	2	9	54
	Public	54	10	64	46	4	3	53
Total		91	16	107	89	6	12	107
P Value		P= 0.921			P= 0.349			

**Table IV: Comparison between MST & MUST scores regarding the gender**

		MST Score			MUST Risk Score		
		Score<2	Score>2	Total	-ve risk	+ve risk	Total
Gender	Females	51	7	58	46	7	53
	males	40	9	49	43	11	54
Total		91	16	107	89	18	107

<b>P Value</b>	<b>P= 0.921</b>	<b>P= 0.289</b>
----------------	-----------------	-----------------

Table V demonstrate that there were no significant difference in malnutrition between age groups. In the MST group, there were 2 positive <30 patients out of 30(6.6%) and 10 patients (30-60) out of 62(16.1%) and above 60 years were 4 out

of 15(26.6%). Regarding the MUST group, there were 3 patients at positive risk in <30 year out of 17 (17.6%) and in 30-60 year they were 9 out of 69 (13%) and in above 60 year they were 6 out of 21(28.5%).

**Table V: Comparison between MST & MUST scores regarding the age**

		MST Score			MUST Risk Score		
		Score<2	Score>2	Total	-ve risk	+ve risk	Total
Age	<30 y	28	2	30	14	3	17
	30-60	52	10	62	60	9	69
	>60 y	11	4	15	15	6	21
Total		91	16	107	89	18	107
P Value		P= 0.192			P= 0.249		

The MUST tool depends on BMI in its scoring so patients results were as demonstrated in table VI. The results of this study showed there was not even

a single patient with BMI <18.5 and the majority of the patients were either overweight or obese.

**Table VI: Body mass index of patients included in this study.**

BMI ( kg/m <sup>2</sup> )	Number	Percentage
<18.5	Nil	Zero
18.5-20	3	2.80 %
20-25	21	19.62 %
25-30	59	55.14 %
30-35	20	18.68 %
>35	4	3.73 %
Total	107	100 %

**Discussion**

Although there was no clear difference between private and public wards scoring system, in MST the risk of malnutrition in private wards were more than public one reflecting no socio-economic influence(table III).In the gender prevalence the risk of malnutrition was

slightly more in male patients in both MST and MUST, this might reflect good nutrition on females gender (table 1V). Regarding age grouping the study showed increase in the risk of malnourishment with advancement of age (age over 60 years) in both MST and MUST systems

which might explain some difficulties in the nutrition of the old ages.

In the absence of screening attitude in the hospital many under nourished patients are missed<sup>13</sup>. This situation is due to increased demand on hospital nursing staff, complexity in patient's management in hospital, increase age of patients and shortening in hospital stay<sup>14,15</sup>. Patients at risk of malnutrition associated with high mortality, longer hospital stay and more complications<sup>16</sup>. In this study we applied two screening tools, the malnutrition screening tool (MST) and malnutrition universal screening tool (MUST). These two tools are easy to use and fast, MST took few seconds and the MUST longer as the patients were weighed<sup>17</sup>.

Malnutrition is a common problem affecting over 40% of admitted patients (30-60%) often unrecognized and under treated<sup>5</sup>. The hospitals must develop comprehensive strategies to identify and treat inpatients with this problem<sup>8</sup> which is responsible for increase complications such as bed sores, delayed wound healing, increase risk of infections, impaired muscular and respiratory function and increase mortality rate<sup>18-20</sup>.

In this study the number of patients positive for risk of malnourishment are; sixteen in MST (14.95%) and eighteen in MUST (16.88%) with less than 2% difference between the two tools. In the MUST group of patients involved in this study we did not identify patients already malnourished i.e. BMI less than 18.5

kg/m<sup>2</sup>, and most of patients in risk of malnutrition are influenced by the effect of their illnesses on admission to hospital. The numbers of patients with normal BMI are 24 (22.42%), while the number of those who are either overweight or obese are 83 (77.57%)

It was found that the greatest causes of concern in Iraqi society in general since the ninety's of last century is the overweight and obesity not undernourishment, and more than 50% of the adult population are overweight to some degree<sup>21</sup>.

Most of patients admitted to the surgical wards will be exposed to trauma of surgery and anesthesia thus malnutrition will accentuate the effect of morbidity after surgery. Malnutrition is either ignored, missed or under estimated.

#### *Conclusion:*

It is concluded from this study that prevalence of undernourishment in hospitalized patients in this trial is low compared with Ben Ishay and Martin<sup>5,6</sup>. There is slight difference in the prevalence of malnutrition risk between the MUST and MST. Malnutrition according to BMI is rare in patients included in MUST. Over weight and obesity are the main problem in the study, not the malnutrition since most of patients randomly included in the two screening tools are over weight and obese.

Patients with positive risk of undernourishment are not malnourished primarily but affected by their diseases.

## **References**

1. Douglas M Anderson . Dorland Illustrated Medical Dictionary. W.B Sanders company, 29th edition, 2000 page 1051.
2. Straton RJ. Elucidating effective way to identified and treat malnutrition. Proceeding of the nutritional society. 2005; 64(3): 305-311(Pub med).
3. Kondrup J, Allison SP, Elia M, Vellas B, Plauth M, ESPEN guideline for nutrition screening 2002. Clinical Nutrition. 2003; 22(4) : 415-421.
4. World Health Organization(WHO). 1999. Management of severe malnutrition- a manual for physicians and other senior health workers. Geneva; WHO, pp. 38.
5. Offer Ben-Ishay, Haya Gertsenzon, Tanya Mashiach, Yoram Kluger, Int Chemesh. Malnutrition in surgical wards, a plea for concern. Gastroenterol Res Pract. 2011; article ID 840512, 4 pages <http://dx.doi.org/10-1155/2011/840512..>
6. Ian M, Wisman M. Malnutrition in hospitals. BMJ. 2008; 336 (P7639), article 290.
7. Campbell SE, Avenell A, Walker AE. Assessment of nutritional status in hospitals inpatients. QJM-Monthly Journal of the association of Physicians. 2002; 95(2): 83-87( Pub Med).
8. Cristopher A Lamb, John Parr, Elizabeth I M Lamb, Mathew D Warren. Adult malnutrition, Screening, Prevalence and management in UK hospitals- Cross sectional study. British Journal of nutrition. 2009 Vol 102 / Issue 04(571-575).
9. Robyn P Cant. Investing in patients' nutrition: nutrition risk screening in hospital. Australian Journal of Advanced Nursing. 2010; vol 28: 2(P83).

10. John Macfie. Nutrition and fluid therapy, Short Practice of surgery, Hodder Arnold, 25th edition, 2008 Chapter 17 P 224-225.
11. Anthony W. good. Nutritional support and rehabilitation, Short practice of surgery. hodder Arnold. 23th edition 2000 P 66.
12. Robert Wilkins, Simon Cross, Ian Magson, Divid Meredith. Obesity and treatment. Oxford Hand Book of Medical sciences, Oxford University press. 2009, p180(reprint with corrections).
- 13 .Elia M, Zellipour L, Stratton R J. To screen or not to screen for adult malnutrition. Clinical Nutrition. 2005 24(6):(867-884).
14. Raja R, Gibson S, Tunner A, winderlich J, Porter J, Cant R, Aroni R. Nurses view and practice regarding use of validated nutrition screening tools. Australian Journal of advanced nursing. 2008 26(1) . 26-33.
15. Frew E, Cant R, Sequerira J. Capturing the data: nutrition risk screening of adults in hospital, Nutrients 2010(2) 438-448.
16. Sorensen J, Kondru J, Prokopowicz J, Schiesser M, Krahenbuble L, Meier R, Liderda M. An international multicenteric study to implement nutritional risk screening and evaluate clinical outcome. Clinical nutrition. 2008 27(3): 340-349.
17. Rabyn P Cant. Investing in patients nutrition: Nutrition screening in hospital. Australian Journal of advanced nursing. 2010 Vol 28 No2. 2(83-84).
18. Harris DG, Davies C, Ward H, Haboubi NY. An observational study of screening for malnutrition in elderly people living in sheltered accommodation. Journal of Human Nutrition and dietetics. 2008. 21(1): 3-9 (Pub Med).
- 19 Osada J, Kamoski Z, Rusak M, Dabrowska M, Kerda B, The effect of surgical and nutritional treatment on activation parameters of peripheral blood T lymphocytes in stomach cancer in post operative peroid. Polski Merkurisuz Lekarski. 2008; 24(141): 231-236 (PubMed).
20. Collins CE, Kershaw J, Brockington S. Effect of nutritional supplements on wound healing in home nursed elderly: A randomized trial. Nutrition. 2005; 21 (2): 147-155(Pub Med).
21. Food and Agriculture Organization of the United Nation (FAO), News room historic archives /New Fao news room. New report looks at food and nutrition in Iraq. 2000, <http://WWW.Fao.Org/english/newsroom/highlights/2000/000904-e.htm>.