Assessment The Nutritional Status Among Critical Patient With Enteral Feeding In Respiratory Care Unit In Baghdad Teaching Hospitals

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ABSTRACT

Background and Objectives : Nutritional status has a significant impact on both health and disease. The study aims to identify the nutritional status of critical patient with enteral feeding in RCU in Bagdad Teaching Hospitals .

Methods and materials : A descriptive study was carried out. The sample consisted of 50 adult patients with enteral feeding on mechanical ventilation in RCU , for the period from 1st of November 2010 to the 1st of April 2011 . The questionnaire tool was consisted of two parts, first one the demographical data and the second part was related to the nutritional assessment scale physical and chemical .

Questionnaire tool was tested for its validity and reliability by a panel of experts with nursing specialty in college of nursing . Descriptive and inferential procedures were used to analyze the data .

Results : The results of the study showed that the most of sample majority were male at age group of (20-30) years old , free earning (not employed) with enteral feeding since 3-4 month , waist circumference and mid circumference below normal standard.

Conclusion: Disoriented with wasted muscle anemic and low S. protein also the study showed significant relation between period of patient on enteral tubation and occupation which revealed that there situation was highly affected by there low income .

Keyword: (Nutritional Status, Enteral Feeding, critical patient**.**

INTRODUCTION

Nutritional status has a significant impact on both health and disease. For well and patients , good nutritional status can help to maintain health , promote normal growth and development protect against disease , during illness good nutritional status can reduce the risk for complications and speed recovery time . The nutritional assessment is a systematic approach used to identify the patients actual needs and formulate a plan to met these needs (Lillis et al., 2011).

Also Perry and Potter(2002) mentioned that nutritional assessment is a procedure conducted to determine appropriate nutritional therapy by collection of objective and subjective data related to nutritional status , which may include , An thropometrics , Biochemical test , clinical observation and dietary evaluation . No single biochemical test , such as serum albumin , can accurately indicate poor nutrition , but collectively biochemical test , measurements of height , weight , upper arm circumference and waist circumference car accurately reflect the clients nutritional status .

Besides , significance of nutritional assessment as the first step in the detection of malnutrition optimal scheme of nutritional assessment enable the clinician to quickly detect the presence of malnutrition and provide guide for nutritional therapy (Audis, 2003).

Biochemical assessment reflects both the tissue level of a given nutrient and any abnormality of metabolism in the utilization of nutrients , these determined from studies of serum (albumin , transferrin , electrolytes , hemoglobin , vitamin A. C , and total lymphocyte count , and studies of urine (creatinine, thiamine, niacin) (patricia et al., 2005) .

Anthropometry measurements aid in identifying nutritional problems include the ratio of high to waist circumference , mid-upper arm circumference (MAC) to (TSF) triceps skin fold , values for MAC ,TSF are compared to standards (Cheatham, 2007).

During the 1990s there was a major shift from parenteral . nutrition to enteral nutrition (EN) , which remains the preferred method of providing nutritional support to the critically ill given its improved patient outcome , EN can help prevent mucosal a trophy and increased permeability with resultant decreases in bacterial translocation (Alexander and Susle, 2004).

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Malnutrition in patients receiving mechanical ventilation has an adverse effect on all physiological process , it increase the risk for infection and pulmonary edema , decrease phosphorus levels needed for cellular energy production , impairs production of surfactant and make weaning from mechanical ventilation difficult due to muscle fatigue and diaphragmatic skeletal muscle weakness , so nutritional status is a multidimensional phenomenon requires several methods of assessment , including nutrition related health indicators and nutritional intake (Magool, 2007).

MATERIALS AND METHOD

A descriptive design was carried out from the period from 1st of November 2010 to the 1st of April 2011. A purposive sample of 50 mechanical ventilation with enteral feeding since at least one month at respiratory care unit (RCU) were included . The study was carried out in (Gazy Al-Haririe, Baghdad, AL-Kadhemia, Ibn-

Alnaffis, Al-Yarmok Teaching Hospitals). A structured questionnaire format was filled by the investigator it was consist of the socio-demographic data sheet consists of 5 items age, gender, occupation, level of education, and of period of enteral intubation and specific questionnaire of nutritional assessment consists of two parts which are the physical assessment, which consist of 8 items and 13 sub items; and the chemical nutritional assessment consists of 5 main items. All items of part two were measeared with by nominal scale of normal which was given a score of (2) to normal and abnormal(1). Validity of the instrument was determined through a panel of 10 experts from different fields and setting. The reliability of the questionnaire was determined (r = 0.85) which was adequately reliable. A statistical analysis was applied using a statistical analysis which included the frequency, percentage, mean of score (MS) and chi-squire test.

RESULTS

Table (1): Distribution of the socio- demographical characteristics of the sample with period of hospitalization

Item	Frequency	%
Age		
20-30	15	30
31-40	9	18
41-50	14	28
51-60	10	20
61- above	2	4
Total	50	100%
Gender		
Male	28	56
Female	22	44
Total	50	100%
Occupation		
Solider	5	10
Free earning	16	32
Officer	11	22
Retired	2	4
House wife	8	32
Total	50	100
Level of education		
Read and write	22	44
Secondary	17	34
University	11	22
Total	50	100%
Hospitalization period of intubation in month		
1-2	8	16
2-3	11	24
3-4	19	38
4 over	11	22
Total	50	100%

Table (2): Frequency and percentage of the Health assessment of the sample

Items	Yes		No		M.S
	Frequency	%	Frequency	%	
Waist circumference > 85 cm	30	60	20	40	1.6
Mid-arm circumference > 32 cm	40	80	10	20	1.8
Skin					
Dry	32	64	0	0	
Scaly	8	16	0	0	
Odem	10	20	0	0	
Hair					
Oily	5	10	45	10	1.1
Dry	37	74	13	26	1.74
Brittle	8	16	42	84	1.2
Eyes					
Red	12	24	38	76	1.6
Dry	32	64	18	36	1.3
Lips (mucus membrane)					
Moist	0	0	50	100	-
Dry	8	16	42	84	1.9
Coated	32	64	18	36	1.28
Muscles					
Wasted (poor tone)	24	48	26	52	1
Under developed nervous system	30	60	20	40	1.4
Reflexes	11	22	39	78	1.4
Decreased	39	78	11	22	1.6

M.S= Mean of score

Table (3): Outcomes of chemical finding assessment of the sample

Items	Normal		Abnormal		MS
	Frequency	%	Frequency	%	
S-Albumin > 3.5 mg/dl	35	70	15	30	1.7
Hb > 12mg/dl	46	92	4	8	1.9
Blood urea >10	29	58	21	42	1.5
Creatinine in 24 hour > 0.1	26	52	24	48	1.5
Blood electrolytes Na+>135-145	32	64	18	36	1.8
K+>3.5	34	48	16	32	1.7

Table (4): Association of period of intubation and occupation

Period of hospital code	Soldier		Free earner		Officer		Retired		House wife		
	F	%	F	%	F	%	F	%	F	%	
1-2 month	5	10	2	4	=	=	=	=	3	6	
2-3 month	=	=	8	16	1	2	=	=	=	=	
3-4 month	=	=	-	=	7	14	=	=	5	10	
4 month and above	=	=	6	12	3	6	2	4	=	=	
Total	**5**	**10**	**16**	**32**	**11**	**22**	**2**	**4**	**8**	**16**	
Pearson Chi-square	=	-	Value	=	d.f	=					P< 0.05
			26.883		3						H.S

Df –degree of freedom,   **F**- Frequency   **H.S**- highly significant

Table (5): Association between Hospitalization period and age group variable

Period of hospitalization in months	20-30		31-40		41-50		51-60		60 above		
	F	%	F	%	F	%	F	%	F	%	
1-2	4	8			2						
2-3					6				2	4	
3-4	6	16	9	18			2	4			
4- above	5	10			6		8		2		
Total	15	30	9	18	14	28	10		2		
Pearson chi-square	Value		Df								p>0.4
	24.883		3								

DISCUSSION

The result of the study revealed that the highest percentage (30%) of the sample at age group of (20-30) years, of age group (41-50) years was(28%) ,and (56%) were male, (52%) of them there occupation, were free learning (32%) , (44%) of them read and write also table indicating that (78%) of the sample they were hospitalized since 1-2 months in table (1). These result agreed with Smeltzer and Bare (2004) who stated that's assessment of nutritional status provides information about obesity , nutrition state , weight loss , abnormal metabolic of medication that affect on nutrition , other examples of health problems associated with poor nutrition include obesity , osteoporosis , cirrhosis due to poverty , which compatible with the study sample they were free earning and soldier affected by expulsion .

Table(2) presented that 60% of the sample with (MS) mean of score (1.6) related to patients with waist circumference less than 85 cm standard, and (1.8) mean of score to mid arm circumference less than 32 cm standard, while (1.9) mean of score to dry mouth, and (1.6) to nervous system assessment that shows 78% of them had wasting of body muscle mass and disoriented.

The result revealed by (Magboo, 2003) study who stated that physical examination includes an thropometrizs, including, weight, stature, waist circumference farm measures. Nutritional assessment for patients with complex chronic disease status should be conducted every 1-2 month.

The general physical examination includes , assessment of patient general condition and close examination of skin , hair , pallor , assessment of body fat stores , wasting of body mass , edema and specific nutritional deficiencies (Lillis et al., 2011).

More over waist circumference , is a good indicator of abdominal fat , where excess body fat is deposited though to be an important and reliable indicator of risk for disease , such as type 2 diabetes , dyslipidemia , hypertension , this risk increases with a waist measurement of over 40 inches (102 cm) in men and 35 inches (88 cm) in women (Lillis et al., 2011).

The chemical assessment results as showed in (table 3) , 92% of the sample at MS(1.9) where anemic(hemoglubulin less than 12 mg/dI) , malnourished 70% with (MS 1.7) due to S-Albumin less the (3.5 mg/dI) and 64% at MS (1.8) of the sample were complaining from electrolyte imbalance . protein is the building block of life, once hectic glycogens are depleted, muscle, protein is degraded to provide three carbon backones for hepatic glyconeogensis.

Protein catabolism takes weak until a critically ill patient is found to be in state of negative nitrogen balance and reflect malnutrition (Alexander and Susle, 2004).

The most common measure of protein nutritional status in critically ill patients is the serum level of albumin, supplemental feedings for chronically critically ill patients receiving long-term ventilation are now routine clinical intervention, yet studies continue to indicate that these patients have low albumin value during hospitalization, reflecting prolonged physiological stress associated with illness process (Magool, 2003).

No relation between period of entreal intubation of critically ill patient of mechanical ventilation with age group due to critical ill patient in R.C.U experience nutritional deficit in all age groups and their dependence on critical care support become with poor functional status, this result showed in table 4.

While Table(5)demonstrated significant relationship between occupation and period of intubation of critical ill patient in hospital (p= 0.05) , which indicated that low family income and patient with a history of anemia , have prolonged hospitalization and facing complication of malnutrition if have nutritional assessment frequently . The patient who is

hospitalized may have an inadequate dietary in take because of illness or disease that or hospitals food unfamiliar , the person who is cared for at home feel too sick or fatigued to buy or prepare food or unable to eat also limitation fixed with costs and low income (Smeltzer and Bare, 2004).

More over the diet history and health history during nursing assessment includes health status , age , culture background , religious food pattern , socioeconomic , mineral , or personal food preference ,use of vitamin , mineral , or herbal supplements , and the clients general nutrition knowledge ((patricia et al., 2005).

Highly significant relation between period of intubation in hospital and age group of the sample , it shows that (p =0.02) was 18% for age group 31-40 years old , which reflect with long period of hospitalization , that critically ill patients with on mechanical ventilation increase there risk.

RECOMMENDATIONS

The present study recommends that it should provide special tool and instrument used for nutritional assessment (anthropometric test), and provide clinical assessment chemical test, like lymphocyte count, transferrin and other test to have complete information related to critically patient on ventilator no get malnutrition.

Finally, apply a standard nutrition assessment scales and programs in feeding the critically patients by providing the R.C.U. units with a high skilled nutritionist .provide a special programs or courses for the nurses in R.C.U or dietarians in preparing the feeding formula to critically ill patient according to standard international criteria

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