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The implementation of standardized nutritional care process on tuberculosis inpatients☆

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Abstract
Objective: This study aims to evaluate the implementation of standardized nutrition care process through nutrition screening, assessment, and nutritional diagnosis on inpatients with tuberculosis.
Method: This research was a descriptive observational study. Convenient sampling was conducted, with 40 tuberculosis cases. The data were obtained both from medical record and interview of dieticians. There are two main steps in the nutritional care process assessed in this research, namely, nutritional assessment and nutritional diagnosed.
Results: Majority of the patients (97.5%) had completed nutritional screening according to the standard. In contrast, most of patients did not have a standardized and complete documents of nutritional history (90%), anthropometric assessment (77.5%) and clinical result assessment (97.5%).
Conclusion: The standardized nutritional care process on hospitalization of tuberculosis patients was not performed accordingly due to heavy workload of dieticians.

Introduction

Malnutrition continues to be a serious problem across health care settings, particularly in hospitals. Missing malnutrition diagnosis appears to be a universal and systematic issue because the rate of malnutrition diagnosis was consistently low across medical centers. Many patients are already malnourished at the point of admission, while others

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become malnourished during their hospital stay. To reduce malnourished prevalence at the hospital, the standardized nutritional care process needs to be implemented. NCP plays a critical component of patients' recovery. It was designed to improve the consistency and the quality of individualized care for patients and the predictability of patients outcome.[1,2] It consists of four distinct, interrelated steps, nutrition assessment, nutrition diagnosis, nutrition intervention and nutrition monitoring and evaluation.

Study conducted at St. Elisabeth hospital found that NCP has not been carried out optimally, in which some of the dieticians have not mastered the way to fill it.[3] Anthropometric measurement, for example, should be conducted properly for all patients, but in reality, some dieticians just estimated visually the weight and the length of patients who were unable to stand, and this is known to be inaccurate. The low awareness and lack of knowledge of dieticians on identifying the nutritional status of patients are considered as one of the causes of the high prevalence of malnutrition in hospital. There was about 40% of patients who did not receive a nutritional screening when registered to hospital. As a result, the patients did not obtain proper nutritional intervention.[4]

The implementation of NCP to all patients is compulsory, including tuberculosis patients as they are also at risk to suffer from undernourished. In Indonesia (2017), the prevalence of TB cases was 254 per 100.000 people whereas the indonesian government has targeted to eliminate tuberculosis in 2035 and 2050 free of tuberculosis.[5]

According to the South Sulawesi provincial Health Department (2014), in 20013 there were 12.846 tuberculosis cases in Makassar city.[6] Meanwhile, at Labuang Baji hospital the number of tuberculosis patients who were administered in January to December 2016 was 707, or about 59 cases every month. Furthermore, there were 112 patients who suffered from Tuberculosis Multi-Drug Resistant.[7] Due to the high prevalence of tuberculosis cases in which they are at risk to suffer from undernourished so it is important to assess the implementation of standardized NCP among the patients.

Method

The study population consisted of patients who were diagnosis with and hospitalized for tuberculosis. We included all tuberculosis patients who were hospitalized at least 7 days, with age 15 years old or older, has an NCP document, and not in critical conditions. Of 53 tuberculosis inpatients, only 40 patients meet the inclusion criteria. Data were obtained from medical records of tuberculosis inpatients and also from interviewing the dietician. Data were processed and analyzed descriptively using SPSS version 24.0. Frequency and percentage were used to describe the categorical variables (nutritional screening, nutritional assessment, and nutritional diagnosis).

Results

The demographic characteristics of tuberculosis inpatients participated in this study are presented in Table 1. Most patients were a man (55%), while the majority of them were of age 46–80y. Based on nutritional status, about 52.5% were severely underweight. Most of them were married, with no job (47.5%). In terms of education level, patients who graduated from senior high school were 37.5%, followed by the elementary school were 32.5%.

Table 1 Socio-demographic characteristic of patients.

	$n = 40$	%
Sex		
Man	22	55
Women	18	45
Age group		
Adolescent (15–25y)	3	7.5
Adult Dewasa (26–45y)	17	42.5
Elderly (46–80y)	20	50
Nutritional status		
Severe underweight	21	52.5
Underweight	4	10.0
Normal	12	30.0
Overweight	2	5.0
Obesity	1	2.5
Marital status		
Not married	7	17.5
Married	33	82.5
Education level		
Elementary school	13	32.5
Junior high school	10	25
Senior high school	15	37.5
Undergraduate	2	5
Occupation		
Jobless	19	47.5
Employer	5	12.5
Labor/farmer/fisherman	7	17.5
Self-employed	7	1.5
Others	2	5.0

Table 2 shows the implementation of NCP on tuberculosis inpatients at the hospital. Majority of patients (97.5%) had a nutritional screening document, and it was filled correctly. Meanwhile, on nutritional assessment, most patients did not have a complete NCP as standardized, which accounted for nutritional history data (90%), biochemical data (72.5%), anthropometric data (77.5%). Similarly, data on physical and clinical measurement and client history were mostly incomplete, in which accounted for 97.5%. In terms of nutritional diagnosis, there was about 55% of patients had a filled NCP document but unstandardized.

Discussion

Nutritional status plays an important role in determining the incubation and the recovery of patients because it can directly affect the immune system.[8] Undernourished people are likely to be more vulnerable to suffer from its disease, or even it can prolong the period of illness. In contrast, people who have a well-nourished are likely to have a good immune system, that can prevent from infection of bacteria and also can help to recover fast.[9]

Table 2 Implementation of nutritional care process through screening, assessment, and diagnosis.

	n = 40	%
Screening		
Unwritten	1	2.5
Performed as standard	39	97.5
Performed but not as standard	0	0
Nutritional assessment		
Nutrition history		
Unwritten	2	5.0
Performed but unstandardized	36	90.0
Performed as standard	2	5.0
Biochemical		
Unwritten	11	27.5
Performed but unstandardized	29	72.5
Performed as standard	0	0
Anthropometric		
Unwritten	2	5.0
Performed but unstandardized	31	77.5
Performed as standard	7	17.5
Physical and clinical		
Unwritten	1	2.5
Performed but unstandardized	39	97.5
Performed as standard	0	0
Client history		
Unwritten	0	0
Performed but unstandardized	39	97.5
Performed as standard	1	2.5
Nutritional diagnosis		
Unwritten	0	0
Performed but unstardardized	22	55.0
Performed as standard	18	45.0

A nutritional care process is a systematic approach to providing high-quality nutrition care to people who are hospitalized. This process consists of four steps, namely nutritional assessment, diagnosis, intervention, and monitoring evaluation.[10] Before NCP, screening nutrition should be performed to rapidly identify patients who are at high nutritional risk or have poor nutritional status at hospital admission. This should occur within the first 24 h of admission. Screening criteria usually include weight and height, recent weight change, oral intake, and sometimes diagnosis and other comorbidities. This study showed that 97.5% of TB patients had complete nutritional screening data on NCP form, with the score and conclusion of the nutritional status of patients. According to dieticians, performing a nutritional screening is easy and quick, so they directly filled the result on NCP without delay. The same result was found on tuberculosis patients who were hospitalized at Wahidin Sudirohusodo in which about 95.5% of cases had a complete nutritional screening data on NCP document.[11]

The identification of malnutrition during hospitalization requires several different processes which typically included nutritional assessment and nutritional diagnosis as the part of NCP. The purpose of nutritional assessment is to define a patient's nutritional status, to identify clinically relevant malnutrition, and to monitor changes in the patient's nutritional status. It records data on nutritional history, biochemical, anthropometric, physical and clinical examination, and client history. In this study, we found that most of these patients' data were written in NCP. However, the majority were incomplete. On nutritional history, data only explained eating pattern, allergic history, and diet without the result of 24 h recall and the conclusion on the nutrient intake status. Similarly, data about biochemical measurement was also inadequate in which there was no conclusion whether its value decreased or increased.

Meanwhile, on anthropometric measurement data, there was no conclusion of patients' nutritional status. The dieticians thought that it was not necessary to re-write it because it was already written in nutritional screening. For physical and clinical data, it was also incomplete as the dieticians only wrote some of the clinical data without the physical condition of the patients. The same condition found on client history in which there was no data about disease history and family history of the patients.

Data collected during the nutritional assessment guides dieticians in the selection of the appropriate nutritional diagnosis. Standardized terminology for nutrition diagnosis has been developed to facilitate this step. It is suggested that dieticians use a Problem Etiology and Symptoms (PES) statement to communicate the nutrition diagnosis. This means that to justify specific nutritional problem must be based on linking etiology and sign and symptoms. The study found that 55.5% of the nutritional diagnosis of tuberculosis patients written on NCP were not performed by its symptom and sign. The dieticians already implemented nutritional diagnosis, but they did not follow the matrix. They did not categorize nutritional problem on whether the patients were inadequate energy intake, food, and nutrition-related knowledge deficit or unhealthy eating habit. The study found that there were several reasons for the incompleteness of NCP forms, such as dietician's heavy workload, lack of awareness, insufficient education of dieticians, and inadequate registered dietitian nutritionist support. The dieticians' shortage can impair their performance in which they have to do a lot of work in limited time. As a result, they become more common to make mistakes and to ignore the completeness of NCP form. Moreover, several additional gaps were identified as the cause of lack of awareness, including but not limited to lack of interdisciplinary clinician participation in the delivery of nutrition care, failure to know of the use nutrition tools, and inadequate training. The train-the-trainer was one the effective way to increase the knowledge, confidence and preparedness for implementing nutritional care process terminology.[12]

Conclusion

The implementation of NCP especially on nutritional assessment and the nutritional diagnosis were not performed accordingly because some dieticians were a failure to know the importance of performing standardized NCP and it is also due to the heavy workload of dieticians. To improve this clinical documentation, more skilled dieticians are required.

Conflict of interest

The authors declare no conflict of interest.

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