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Support in providing adequate nutrition for the length of treatment for patients after bone fracture surgery at the Meuraxa Hospital, Banda Aceh

Dukungan pemberian nutrisi terhadap lamanya perawatan pasien pasca bedah fraktur tulang di Rumah Sakit Umum Meuraxa Banda Aceh

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Abstract

One of the problems in fulfilling nutrition is the knowledge or belief that consuming excess protein will result in a longer wound-healing process. Meanwhile, nutritional status is essential in fulfilling nutrients for wound healing and length of stay in postoperative fracture clients. The study aims to determine the relationship between the fulfilment of nutritional needs in participants after lower extremity fracture surgery at Meuraxa Hospital, Banda Aceh City. This research design method is correlation analysis with a cross-sectional approach with a non-probability sample technique with a sample of 83 post-surgical bone fracture patients. The calculation method uses the formula for a 10% error rate from the total population of post-fracture inpatients 123 respondents. The research location is Meuraxa Hospital, Banda Aceh, and it was conducted in March 2021. Results, there is a relationship between knowledge about nutritional fulfilment (p= 0,005), eating habits (p= 0,002), and perceptions of dietary restrictions (p= 0,002) with the length of treatment days in patients after bone fracture surgery at Meuraxa Hospital Banda Aceh. In conclusion, nutrition support affects the length of treatment days, where knowledge, habits and abstinence can shorten treatment days.
Keywords: Fracture, length of stay, nutritional fulfillment.

Abstrak

Salah satu permasalahan dalam pemenuhan nutrisi adalah pengetahuan atau kepercayaan bahwa dalam melakukan konsumsi protein yang berlebih akan mengakibatkan lamanya proses penyembuhan luka. Sedangkan status gizi memiliki peran yang penting pemenuhan nutrisi untuk penyembuhan luka dan lama rawat pada klient post operasi fraktur. Penelitian bertujuan untuk mengetahui hubungan pemenuhan kebutuhan nutrisi pada partisipant pasca bedah fraktur ekstermitas bawah pada Rumah Sakit Umum Meuraxa Kota Banda Aceh. Metode desain penelitian ini analitik korelasi dengan pendekatan cross sectional dengan tekhnik *non probability sampel* dengan sampel pasien pasca bedah fraktur tulang sebanyak 83 orang dengan metode perhitungan mengunakan rumus taraf kesalahan 10% dari total populasi rawat inap post fraktur 123 responden. Lokasi penelitian di RSUD Meuraxa Banda Aceh, dilakukan pada Maret 2021. Hasil, terdapat hubungan pengetahuan tentang pemenuhan nutrisi (p= 0,005), kebiasaan makan (p= 0,002), dan persepsi pantangan makanan (p= 0,002) dengan lama hari rawatan pada pasien pasca bedah fraktur tulang di Rumah Sakit Meuraxa Banda Aceh. Kesimpulan dukungan pemberian nutrisi berpengaruh pada lamanya hari rawatan dimana pengetahuan, kebiasan dan pantangan dapat memperpendek hari rawatan.
Kata Kunci: Fraktur, lama hari rawat, pemenuhan nutrisi

Introduction

Indonesia tends to increase fracture prevalence in recent years, from 4,5% to 5,8% (Keane et al., 2022). The data obtained show that the characteristics of an accident vary greatly, such as age, sex, type of fracture, location of the fracture, and length of treatment days for fracture patients in traffic accidents (Kaegi-Braun et al., 2022).

Nutritional support is the most essential factor for the healing process of treated patients because nutrients and food that enter the body are sources of protein to replace damaged cells and repair damaged tissue. The management of nutrition is carried out by multidisciplinary professionals, including doctors who are responsible for the entire implementation process; pharmacists are responsible for providing drug therapy that does not affect the process of food absorption; nutritionists are responsible for providing the right food formula according to the needs of patients; and nurses are responsible for providing access to food, maximizing food absorption until food is delivered to body cells (Pitri et al., 2019).

The time spent in the surgical room is related to the elements influencing treatment. Elements related to medical actions, patient management, hospital administration problems, and nutritional fulfillment during treatment can affect the delay in patients going home, especially those who need medical or surgical treatment (Heydari et al., 2022). The factors that have an impact are infection of the surgical wound, type of surgery, day of hospital admission, and day of discharge from the hospital (George et al., 2022).

One of the external factors affecting the treatment duration is the patient's nutritional intake. This is because nutrition is the basis for improving wound healing and preventing patient malnutrition. Therefore, it is essential to provide early nutrition to postoperative patients. Lack of health information, especially for patients and families, is a problem regarding fulfilling nutrition because patients still depend on family (Waliulu, 2018). In digestive surgery patients, there is an increase in metabolic stress; therefore, energy and protein need to increase (Marianthi et al., 2020). If this is not immediately overcome by providing nutrients, protein tissue will break down to meet its nutritional needs, which becomes a problem. Therefore, early nutrition is essential to provide nutrition early (Eslami et al., 2019).

The provision of nutrients is also inseparable from the body, where the body can digest nutrients, including the function of digestive enzymes in the body to help break down nutrient molecules into smaller ones so that the intestine can absorb them. The ability to absorb starts with the ability to deliver nutrients to cells. The function of absorption includes the availability of insulin as a glucose receptor, the ability of the heart to pump blood, and sufficient oxygen concentration for metabolizing nutrients to form energy and become a source for cells to regenerate (Pitri et al., 2019). The fulfillment of nutrition has influences, such as culture and knowledge, which also affect nutritional problems. Previous research has found that people who practice abstinence from food, such as fractured people, should not consume fish because it will cause diseases such as itching, which can cause long wounds to heal and become a new problem (Indrawanti et al., 2021).

Likewise, people's perceptions are influenced by the knowledge and culture of the area. Lack of knowledge in terms of nutritional fulfillment when treated remains a problem in the inpatient room because of the ignorance of patients and their families. Families and patients still believe abstinence from certain types of food, such as cob fish, can accelerate healing (Ratnasari et al., 2022). This is also proven by the fact that food sourced from fish can itch and worsen the condition of wounds, especially postoperative wounds.

Furthermore, physiologically, in postoperative patients, there is an increase in metabolic expenditure for energy and repair, increased nutrient needs for homeostasis, recovery, return to full consciousness, and rehabilitation to normal conditions (Hariono et al., 2021). Surgical procedures cause catabolism and affect digestion, absorption, and assimilation procedures when nutritional needs also increase (Waliulu, 2018).

Malnutrition is a common problem in hospitals, including postoperative patients. Several studies have reported the prevalence of malnutrition in hospitalized patients. In one hospital in the UK, malnutrition was caused by malnutrition (Patricio et al., 2021). Other studies have shown that the prevalence of malnutrition in hospitals ranges from 40 to 59%. In

Indonesia, Sukmaniah et al. revealed that the prevalence of malnutrition in inpatients on the first day was 16% (Andjarwati et al., 2022). On the seventh day of treatment, the percentage of undernourished and malnourished patients increased to 20% (Dictara et al., 2018).

Research conducted by Syafridayan revealed that to deal with post-surgical clients who performed surgery, it is essential to maintain fluid administration, proper drug control, emotional support from family, and the fulfillment of appropriate feeding for certain conditions so that the process is fast enough to restore tissues that have been damaged or lost during the process of surgery (Richards et al., 2018).

The standard hospital stay (AvLOS) length ranged from 6 to 9 days. A higher AvLOS is interpreted as low health service in the inpatient unit or inefficiency of health service delivery in hospitals. Conversely, a decrease in AvLOS shows an increase in the quality and efficiency of services provided, increasing patient satisfaction with health services' needs. Nepalese researchers state that proper management of eosinophilic comorbidities and exacerbations, as well as careful use of mechanical ventilation support, are needed to further reduce the duration of hospital stay in patients with chronic obstructive pulmonary disease patients (Pokharel et al., 2022).

The problem of long treatment days still occurring in Indonesia is caused by many factors, such as nosocomial infections, mismanagement of treatment, and nutrition. Every year, this number continues to grow, which makes it a burden for the government because it has to bear patients who have been treated for a long time (Syam & Khair, 2019). Based on the data from the Banda Aceh City General Hospital, it was found that the number of participants after fracture surgery was 83, and the duration was long. Based on this, the majority of post-fracture fetuses that occurred at the Meuraxa General Hospital in Banda Aceh were 83 participants, with an average treatment duration of 18 days, based on data from the medical records of the Banda Aceh City General Hospital.

Methods

The study used a Cross-sectional design to identify the presence or absence of a relationship between meeting nutritional needs in cases of post-surgical fractures of the lower extremity bone and the length of treatment days carried out at Meuraxa Hospital in Banda Aceh City and was carried out in May 2021. This research also received institutional permission from the Research Ethics Commission of the Faculty of Nursing, University of North Sumatra (license number: 2152/VII/SP/2021).

The sample was a postoperative bone fracture patient with as many as 83 patients. The sample size was determined using the error rate formula of 10% to determine the number of samples from a specific population, which in this study obtained a population of 123 people in the inpatient room. Non-probability sampling was used. Sampling was performed by assigning subjects who met the research criteria. The research inclusion criteria included patients in the inpatient room with postoperative fractures, with a minimum age of 17 years and a maximum age of 65 years. The criteria for research exclusion were prospective samples with respondents who refused to participate.

The measuring instruments used were questionnaires and observation sheets using a Likert scale (20 for Part A looking at the number of demographics, Part B to measure nutritional fulfillment, and Part C to measure the length of treatment days containing questions in the form of a checklist about basic daily activities, eating and drinking, and moving places).

Data processing is first edited; at this stage, the data are corrected to eliminate errors in the process of data retrieval; then, each piece of data, such as knowledge, habits, and culture or food restrictions, scoring values on the data to be input into data analysis software. Finally, the data tabulation process, making tables containing the data that have been coded according to the analysis needed.

Data analysis using the chi-square test at a 95% meaningfulness level with data processing editing (re-checking the data collected), coding (grouping data), data entry (entering the collected data into the master table), and analysis using software to determine the relationship between knowledge, habits, and perceptions of food abstinence with the length of treatment days.

Result and Discussion

Table 1. Demographics, habits, perceptions of abstinence, and length of treatment at Meuraxa Hospital

Characteristic		n	%
Age	Adult Age (18-40 years old)	46	53,3
	Old age (41-65 years old)	37	46,7
Gender	Man	34	43,3
	Woman	49	56,7
Recent Education	Low	32	40,0
	Intermediate	38	46,7
	High	13	13,3
Work	Private Employees	35	40,0
	Civil servants	4	6,2
	Other	44	58,2
Adequate Nutrition Knowledge	Good	13	15,7
	Less	70	84.3
Habit	Good	15	10,1
	Bad	68	81,9
Perception/Abstinence	Exist	49	59,0
	None	34	40,1
Length of Treatment Days			
Length of day	Fast	19	22,9
Treatment	Slow	64	77,1

Based on Table 1, it can be concluded that most participants in the age category are aged 18–40 years, with 46 participants, or 53,3%. Based on gender, most participants are female, reaching 49 respondents, or 56,7%. Based on the level of education, most participants had a secondary education level of 38, or 46,7%. Most participants were those with other types of work, which comprised 44 respondents, or 58,2%.

Based on the results of Table 1 research, it was found that the highest distribution of meeting the nutritional needs of participants with fewer categories, namely as many as 70 participants with a percentage (84,3%), then habits in meeting the nutritional needs of participants with the highest category were not good, which was as many as 68 participants with a percentage (81,0%), then perceptions or taboos in meeting nutritional needs with the highest category existed, namely, abstinence, which is as much as 59,1%.

Based on Table and Diagram 1, it was found that the highest length of treatment days was the slow category (64 participants with a percentage (of 77,1%), followed by the lowest number of fast categories (19 participants, 22,9%). The results obtained were presented scientifically through narratives, tables, and graphs. The manuscript's use of tables or figures was limited to no more than four tables or figures. The following is an example of presenting the research results in the form of a Table 2.

From Table 2, based on the test results above, the level of knowledge of the significance of the results is p-value = 0,005 or smaller than the predetermined level of significance (α= 0,05). Therefore, it was concluded that there was a relationship between knowledge of meeting nutritional needs and the length of treatment days in participants with postoperative lower extremity fractures.

Habit shows that the test results' significance level is p-value = 0,002 or less than the predetermined significance level (α = 0,05). It can be concluded that there is a relationship between habits in meeting nutritional needs and the length of treatment days in participants with lower extremity fractures postoperatively.

Perception and abstinence of the significance level of test results with p-value = 0,002 or less than the predetermined significance level (α = 0,05). It can be concluded that there is a relationship between perception and abstinence in fulfilling nutrition and the length of treatment days in postoperative

participants with lower extremity fractures in female and male surgical inpatient rooms at the Banda Aceh City General Hospital.

From the bivariate analysis results, of the 83 participants with knowledge of meeting nutritional needs related to the length of treatment days, the highest value was less in the category of 63 (95,5%). Based on Rati Permatasari and Nurul Mahmudah's research on the relationship between the level of knowledge and nutritional status of the wound healing process and the results of the study showing the relationship between the level of knowledge and nutritional status and post-op wound healing with a p-value of 0,010 (p <0,05), the higher a person's knowledge, the better the healing of surgical wounds because patients who know how these nutrients can accelerate wound healing in wounds (Barlow et al., 2023).

Table 2. The relationship of knowledge, habits, and perceptions/abstinence on meeting nutritional needs with the length of treatment days

Variables	Length of treatment days				Total		p-value
	Fast*		Slow**				
	n	%	n	%	n	%	
Knowledge							
Good	11	73,4	4	26,6	15	100,0	0,005
Less	5	4,5	63	95,5	68	100,0	
Habit							
Good	13	65,0	7	35,0	20	100,0	0,002
Bad	3	4,8	60	95,2	63	100,0	
Perception/Abstinence							
Exist	3	10,2	53	89,8	59	100,0	0,002
None	16	66,6	8	34,4	24		

* 7 days, **>7 days

Next, the level of knowledge of a person regarding the fulfillment of nutritional value influences action. Lack of nutrition knowledge reduces a person's ability to apply nutritional information during treatment days (Coker et al., 2022). Knowledge to improve patient nutrition awareness during the treatment process: In previous studies, feeding with high protein sources was very effective in accelerating postoperative healing (Rokhyati & Hasib, 2018). One's knowledge of a method of healing the disease affects the rapid healing process. If the case occurs in a postoperative fracture patient, nutrition dominates because it meets protein and metabolic needs for healing to reduce the number of days of treatment.

The results were obtained from 83 participants, and with habits in meeting nutritional needs with the length of treatment days, the highest value was not good with a category of 60 (95,2%) with a significance of 0,002, where there is a relationship between patient habits in consuming food following the recommended dietary patterns provided by the hospital, such as foods with high sources of protein and vitamins from substances that have been measured by nutritionists and the right time to consume these foods.

According to the theory put forward by Potter and Perry, the duration of prolonged treatment is caused by several factors, namely extrinsic and intrinsic factors. Extrinsic factors include inadequate nutrition, surgical techniques, medications, wound management, and the pattern of eating habits. The better the patient's habit of consuming food, the faster the wound-healing process. Intrinsic factors include age, circulatory disorders, pain, mobilization comorbidities, and belief in the habit of its predecessor (İbrahimoğlu et al., 2023).

Lack of nutrients, such as protein, vitamin C, and zinc, can slow the wound healing process, especially in surgical wounds with large incisions, requiring proper intake. However, in cases that occur in the field, some patients have not met their nutritional needs because of a habit that has been followed by family and long-standing beliefs. Some elements of food they believe, such as not eating certain types of fish, certain vegetables, and even meat, are because their parents or relatives tell them of their family that such foods can worsen the condition of the wound (Palmieri et al., 2019).

Furthermore, based on the perceptions and taboos known from 83 participants, in fulfilling nutritional needs with the length of treatment days, the highest value was that there were perceptions and taboos carried out by respondents in category 53 (89,8%) with a significance of 0,002, where there was a relationship between perception, abstinence, and the length of treatment days.

According to the results of a survey conducted on postoperative mothers, Sectio Caesarea, on average, experienced long wound healing because the respondents lacked knowledge, perceptions, and taboos on several types of food, such as fish, and were only recommended to consume clear soup. While the fulfillment of intake stimulates maximum wound healing, a less supportive attitude towards the behavior of fulfilling nutritional intake from the family and certain food restrictions, such as fishy foods such as freshwater and sea fish, eggs, meat, beef, chicken meat, and fruits, can prolong the healing of maternal wounds after surgery, but consuming these foods is very good to help the wound healing process (Saputra, 2022)

One fulfillment of nutritional needs or essential nutritional intakes is protein and vitamins, but most ordinary people limit protein consumption when experiencing trauma or injury. This is due to a lack of knowledge or belief that consuming excess protein will prolong wound healing (Lindman et al., 2013).

The results of previous studies also indicated that the score was very effective in the wound healing process, SAPS II (23 ± 7 vs. 29 ± 8, p= 0,005) and SOFA (4 ± 3 versus 7 ± 2, p= 0,007) on the first day postoperatively, but could not improve postoperative outcomes in patients who stayed > 1 d in the ICU; thus, when nutrition was fulfilled even though only a small amount of food was consumed, there was an effect compared to patients who did not consume any food due to abstinence on what to do (Paz et al., 2018).

Perception or abstinence is the dominant factor in healing, especially in postoperative incision wounds. Perception or abstinence following the recommendations of medical officers or paramedics, such as nurses, is always followed by patients because if patients apply abstinence as not recommended, they can heal old wounds and even worsen the condition. Examples of sodium selenite foods are fish, meat, cereal, ham, and soy sauce; therefore, by not doing taboos, patients can shorten the treatment period.

Conclusion

It can be concluded that nutritional fulfillment supports knowledge, habits, and taboos on the duration of treatment for patients after bone fracture surgery at Meuraxa General Hospital Banda Aceh, where better knowledge, habits, and taboos of patients during treatment will shorten the treatment days to help reduce the burden of long-term treatment for patients.

Suggestions: One way to meet nutritional needs is by conducting health education, making leaflets to be socialized to patients treated in postoperative care, having nurses conduct health counseling regarding the fulfillment of nutrition to speed up the healing process of patients, and finally, having the Director of Meuraxa Hospital make policies for patients treated to spend the food given by the hospital firmly so that the treatment time is shorter in the postoperative inpatient room. Meuraxa Hospital, Banda Aceh.

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