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Evaluation Of Nutritional Care For HIV (Human Immunodeficiency Virus) Patients With Pulmonary Tuberkulosis

Rahmi Kartini Pertiwi[1]*, Endang Mulyani[2], Nazhif Gifari [1]

[1]Universitas Esa Unggul, Arjuna Utara St No.9, Duri Kepa, Kec. Kb. Jeruk, Kota Jakarta Barat, Daerah Khusus Ibukota Jakarta, Indonesia
[2]Nutritionist, RSU Kabupaten Tangerang, Jend. Ahmad Yani St No.9, RT.001/RW.003, Sukaasih, Kec. Tangerang, Kota Tangerang, Banten, Indonesia

** Corresponding Author. E-mail: rahmikartini.rd@gmail.com*

ABSTRACTS

Introduction: Indonesia is one of the countries with the fastest HIV development in Asia. The cumulative number of cases from 2003 to 2013 was 108,600 cases. The national accumulation is estimated at 186,000 people living with HIV in 2010. Papua is an area with an expanding HIV prevalence of 2.4%. HIV (Human Immunodeficiency Virus) is a virus that attacks the body's immune system. Tuberculosis (TB) is a bacterial infection that is spread through droplets inhaled from the coughs or sneezes of an infected person. Nutritional status is an important factor of disease immunity and plays a role in the frequency and severity of infection by inhibiting immune function for HIV patients with pulmonary TB. Vulnerability in HIV patients with a nutritional status below normal is more easily infected with Mycobacterium tuberculosis. Based on cases of TB HIV coinfection during 2010-2017, there was an increase from 2,393 to 7,796. This study aimed to determine the enhancement of nutritional needs of patients during hospitalization.
Method: This research method uses a descriptive case study. This research was conducted in July 2021 at the Rumah Sakit Umum Tangerang with a saturated sample.
Result: The outcome of observations and interviews with nutritional care for five days, there was an improvement in appetite disorders with an initial fulfillment of 70% to achieve a nutritional intake of 100%, the feeding route with the NGT gradually became oral, as well as the texture of enteral food, then the texture of the combination of soft and enteral, thus regular & enteral meals. The finding is that monitoring the compliance of nutrients gradually increase the need for daily intake, eating routes, and evolved eating texture.

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1. Introduction

Indonesia is one of the countries with the fastest development of HIV in Asia. The cumulative number of cases from 2003-2013 was 108,600 cases. The national accumulation is estimated at 186,000 people living with HIV in 2010. Papua is a region with an expanded HIV prevalence of 2.4% (Ministry of Health, 2021).

HIV (Human Immunodeficiency Virus) is a virus that attacks the body's immune system. *HIV* enter the white blood cells. White blood cells function to protect the body from various kinds of attacks. HIV slowly destroys white blood cells so they cannot function properly (Hardinsyah, 2017). HIV related *Tuberculosis* (TB) in 1999 caused 30% of deaths in 1,000,000 cases. TB in HIV sufferers has unusual clinical problems and can cause difficulties in making a diagnosis (Zumla, et al., 2000).

Tuberculosis (TB) according to *NHS* (2019) is a bacterial infection that spreads through droplets inhaled from coughs or sneezes from someone who is infected. TB attacks the lungs but can also affect other parts of the body including the abdomen, lymph nodes, bones, and nervous system.

Pulmonary TB disease occurs when the body's power decreases. Susceptibility in HIV sufferers with below normal nutritional status is more easily infected with HIV *Mycobacterium tuberculosis*. Based on cases of HIV TB co-infection during 2010-2017, it increased from 2,393 to 7,796 (Ministry of Health, 2018).

Malnutrition is one of the consequences of HIV including ingestion, absorption, digestion, metabolism, and use of nutrients affecting immunocompetence, health, physical activity, and work performance. Nutritional status is an important factor of disease immunity and plays a role in the frequency and severity of infections (Hardinsyah, 2017).

To improve nutritional status, it is necessary to improve diet by providing education about balanced nutritional food. According to Mansyur, *et al.* (2022) eating habits of HIV sufferers in the city of Ternate consume staple foods in the form of rice by 70%, 40% consume noodles, 30% consume corn. Then protein intake in the form of fish is 80%, 50% consumes eggs, consumes tempeh 40%. Vegetable intake by 40% with a choice of spinach, mustard greens, and long beans. Fruits that are often consumed are watermelons and oranges with a frequency of 6 times per day with a percentage of 50% and apples are consumed 1-3 times per week with a percentage of 40%.

The frequency of food selection is influenced by factors related to food, personal factors related to decision making when choosing food and socioeconomic factors. These factors are related to knowledge of food selection to meet daily nutritional needs, foods that are safe for consumption, both fresh and processed foods, and food processing techniques to produce delicious food and still have the nutrients the body needs (Bujang, *et al.*,2021).

Fulfillment of nutrition to optimize or improve nutritional status is related to multidisciplinary factors in the health sector in practical life, as explained by Muderedzi, *et al.* (2019) the effect of food security, gender roles and HIV/AIDS which concluded that food insecurity is one of the causes of worsening HIV sufferers.

The worsening of HIV sufferers is mostly related to the adequacy of nutritional intake. Nutritional intake can be fulfilled related to collaboration between health workers such as doctors, nutritionists, nurses, and community factors other than health workers that can affect intake fulfillment. There are challenges in providing nutritional care such as challenges in

providing care support, health and social care practices and developing holistic care. Health services such as hospitals can be a means and support regarding adherence in care HIV is a chronic disease resulting in an increase in quality of life (Lita,*et al.,* 2021; Frood, *et al*., 2018; Oumer, *et al.,*2019; Andrew,*et al*., 2020).

Rumah Sakit Umum Tangerang (RSUT) became a place of research using the Standardized Nutrition Care Process (PAGT) to systematically analyze problems carried out by professionals to address nutrition-related problems with safe, effective, and quality nutrition care.

The purpose of this research is to prevent nutritional deficiencies by meeting nutritional needs through the provision of solid and liquid food intake as well as maintain optimal nutritional status.

2. Materials and Methods

This research method is descriptive with a case study design. The subjects in this case study were HIV patients with pulmonary TB who were treated at the RSUT in the infectious disease inpatient ward.

This case study was carried out in July 2020. Using saturated sampling with data collection techniques using observation and interview methods.

3. Results and Discussion

Observations on patients aged 54 years and 8 months diagnosed with HIV with pulmonary TB. The patient came on June 30th 2021 with initial complaints of coughing up blood, appetite disturbances, weakness. Patient experienced weight loss from 62 kg to 40 kg for unknown duration, height 152 cm, BMI 17.2 kg/m^2 (malnutrition nutritional status). The patient has difficulty communicating because of weakness, and has appetite disturbances and refuses to consume food. Physical/clinical data includes blood pressure, pulse, body temperature, and normal respiratory rate. It is known that laboratory results show anaemia, leukopenia, high SGOT/SGPT values, and electrolyte values of Na, K, and Cl below normal values. Intake before inward intake is mostly less than 70% of the daily requirement of 70% intake fulfilment.

Nutritional diagnosis of patient's nutritional intake NI.5.1 An increase in nutritional needs related to malnutrition is indicated by a BMI of 17.2 kg/m^2. Then clinical nutrition diagnosis NC.2.2, namely changes in lab values related to nutrition associated with nausea, so that patients refuse to eat marked with SGOT/SGPT values 224/36. Behavioural nutrition diagnosis is NB.1.5 is disorders of eating pattern associated with malnutrition of patients indicated by the percentage of fulfilment of Intake before inward food 67% energy, 47% protein, 69% fat, and 72% carbohydrate.

Nutritional interventions aim to prevent nutrient deficiencies by meeting nutritional needs through the provision of solid and liquid food intake, and maintaining optimal nutritional status. Nutritional needs are provided with 70% daily fulfilment of 919 kcal, 32 grams of protein (20%), 21 grams of fat (25%), 104 grams of carbohydrates (55%) and 100% fulfilment of 1434 kcal daily. Food is given in liquid consistency via the NGT and solid orally. The frequency of meals is given 7 times (3 big meals, 2 times snacks, 2 times liquid food).

Diet therapy on the first day - the second day was in the form of 3x100 commercial liquid food and 3x100 (hospital liquid food), and the third and fifth days were given semi-solid food

800 kcal, 3 extra of boiled egg white, 2x200 cc commercial liquid food.

On the first day the patient experienced appetite disturbances, nausea and weakness so that he refused to eat orally so that the fulfilment of nutritional needs using the NGT with commercial liquid food with diet therapy 3x100 ml and liquid food from hospital 3x100 ml with the availability of intake availability of 70%.

The decision to give commercial liquid food as a fulfilment of the availability of intake with consideration of fat intake *multi chain triglyceride* (MCT) so that fat absorption is better to prevent drastic weight loss (Razak, 2008).

Table 1. Intervention D-1

	Energy	Protein	Fat	Carbohydrate
Total available intake (kcal)	832	26	32	111
Total available intake (kcal)	919	46	26	127
Percentage of available intake (%)	91	64	144	101

The patient had an appetite disorder, provided sufficient energy was 91%, protein 64%, fat 144%, and carbohydrate 101% through the NG tube. Giving liquid food per 100 ml is carried out based on eating disorders via oral and to improve the general condition of the patient.

Evaluation of good first day intake, diet therapy on the second day given 3x150cc commercial liquid food and 3x150cc liquid food from hospital.

Table 2. Intervention D-2

	Energy	Protein	Fat	Carbohydrate
Total available intake (kcal)	736	17	26	112
Total available intake (kcal)	919	46	26	127
Percentage of available intake (%)	80	43	117	101

On the second day the patient's condition was better with fulfilment adequate availability of 80% energy, 43% protein, 117% fat, and 101% KH through the NGT. This is in line with Budiman (2018) by providing a protein intake above 15% which can improve the patient's prognostic condition.

Table 3. Interventions D-3

	Energy	Protein	Fat	Carbohydrate
Total available intake (kcal)	186	5	6	22
Total available intake (kcal)	919	46	26	127

	Energy	Protein	Fat	Carbohydrate
Percentage of available intake (%)	20	12	27	20

The patient experienced appetite disturbances related to nausea and weakness, the NGT had been removed, the texture of the food was replaced with a soft texture, the percentage of available intake was 70%, the fulfilment of the availability of intake decreased, namely energy 20%, protein 12%, fat 27%, and carbohydrate 20% orally.

Table 4. Interventions D-4

	Energy	Protein	Fat	Carbohydrate
Total available intake (kcal)	433	12	15	53
Total available intake (kcal)	919	46	26	127
Percentage of available intake (%)	47	29	65	48

The percentage of available intake of 70% experienced an increase of 47% energy, 29% protein, 65% fat, and 48% carbohydrate orally. This is in line with Yuniarti (2013) by providing counselling able to increase energy intake by 27%, while in this study the percentage of available protein intake increased by 17%, fat intake increased by 38% and carbohydrate intake increased by 28%. But on Yuniarti's research (2013) did not increase protein intake.

If there is a decrease in intake, patient and family are given nutritional counselling regarding the importance of fulfilling daily intake at every meal and providing motivation for patient to be able to increase their appetite.

Table 5. Interventions D-5

	Energy	Protein	Fat	Carbohydrate
Total available intake (kcal)	1086	37	25	170
Total available intake (kcal)	1434	72	40	197
Percentage of available intake (%)	76	51	61	86

Improving the patient's condition, complaints of nausea can be tolerated, the texture of the food is replaced with the texture of ordinary food, the percentage of available intake is 76% energy, 51% protein, 61% fat, 86% carbohydrates from a total of 100% fulfilment of intake.

During the monitoring of nutritional care the patient showed an improvement in nutritional intake from feeding using enteral food textures by the NGT route then improvising

into soft food and solid food with additional liquid food by the oral route for 5 days of monitoring.

Limitations in this study were incomplete laboratory results and no data on drugs consumed so that an in-depth analysis of the development of nutritional biochemistry could not be carried out, the condition of the patient difficult to communicate was also one of the factors causing the history of HIV to be unknown.

5. Conclusions

Based on the results of observations and interviews with nutrition care for 5 days, the patient showed a better change in food intake with improved appetite disorders. The electrolyte disturbances experienced by the patient gradually improved so that the nutritional status was maintained with the patient's appetite improving.

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