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CASE STUDY: NUTRITIONAL MEDICAL THERAPY IN A PATIENT WITH INTESTINAL TUBERCULOSIS, SEVERE MALNUTRITION, AND CACHEXIA WHO UNDERWENT LAPAROTOMY AND LOOP ILEOSTOMY CREATION

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ABSTRACT

Intestinal tuberculosis (TB) is a rare form of extrapulmonary tuberculosis that is often associated with severe malnutrition and cachexia due to impaired nutrient absorption, chronic inflammation, and reduced food intake. This case study describes a 31-year-old female patient diagnosed with intestinal tuberculosis complicated by severe malnutrition and cachexia. The patient was admitted with worsening abdominal pain, nausea, vomiting, significant weight loss (31% within six months), and poor nutritional intake. Initially suspected of having an intra-abdominal tumor, the patient underwent exploratory laparotomy, adhesiolysis, and loop ileostomy. Postoperative findings confirmed intestinal tuberculosis with ileal, omental, and cecal adhesions. Nutritional management was initiated using a combination of parenteral and enteral nutrition, followed by a gradual transition to oral feeding according to the patient's clinical condition and tolerance. Nutritional intake, ileostomy output, and laboratory parameters were continuously monitored throughout hospitalization. The patient demonstrated progressive clinical improvement, increased tolerance to nutritional intake, successful transition to oral feeding, and enhanced postoperative recovery. Nutritional support contributed to wound healing, stabilization of nutritional status, and overall recovery. The patient was discharged after 15 days of hospitalization with anti-tuberculosis therapy and nutrition counseling. Individualized medical nutrition therapy is essential for patients with intestinal tuberculosis complicated by severe malnutrition and cachexia undergoing surgery. Appropriate perioperative nutritional support, continuous monitoring, and nutrition education can improve recovery and clinical outcomes.

Keywords: *Intestinal tuberculosis, medical nutrition therapy, severe malnutrition, cachexia, laparotomy, loop ileostomy, nutritional support, postoperative nutrition.*

INTRODUCTION

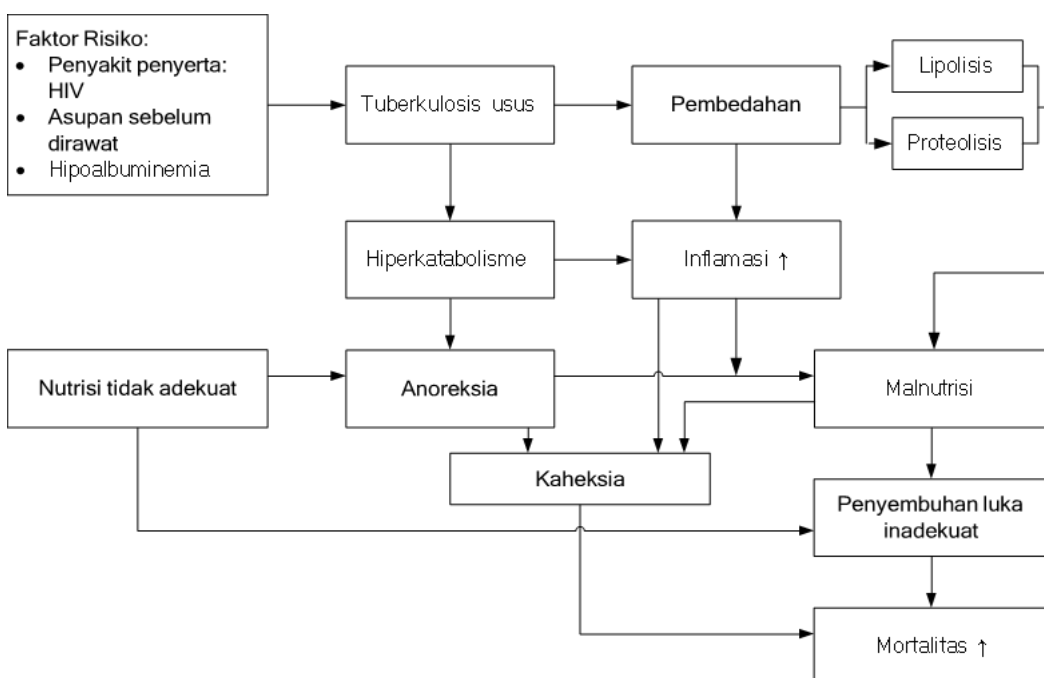
Tuberculosis (TB) is a chronic infectious disease that remains a global health issue, especially in developing countries. The primary focus of TB infection is the lungs, but the TB bacteria can invade extrapulmonary organs. Intestinal tuberculosis is a rare clinical manifestation of TB, but its cases are increasing every year. Tuberculosis is closely related to malnutrition and cachexia, because if an infection occurs in the intestinal mucosa, it can lead to ulceration and necrosis of the mucosal layer, which will affect nutrient absorption. In addition, decreased intake due to anorexia caused by inflammation also contributes to malnutrition and cachexia in TB patients. Nutritional medical therapy for intestinal tuberculosis with malnutrition aims to provide adequate nutrition, improve nutritional status, reduce the risk of death, shorten the length of hospitalization, prevent muscle mass loss, support the disease recovery process, meet adequate micronutrient needs, and enhance the body's immune system.

LITERATUE REVIEW

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The diagnosis of intestinal TB requires the skills of an experienced clinician due to the diverse clinical manifestations that resemble gastrointestinal diseases caused by autoimmune disorders, malignancies, parasitic infections, or contact with irritants. The intestines and peritoneum can be infected thru four mechanisms, namely direct spread from adjacent organs, spread thru the bloodstream from active TB or miliary TB, inhalation of infected sputum droplets, and consumption of contaminated milk or food. Direct invasion of the intestinal wall may occur after the consumption of unpasteurized milk. The clinical picture of intestinal TB includes: 1) symptoms due to mucosal ulceration such as diarrhea, hematochezia, and malabsorption; 2) extraintestinal manifestations such as arthritis, peritonitis, and lymphadenopathy; 3) symptoms related to transmural involvement such as abdominal pain, rigidity, and vomiting due to lumen obstruction, palpable mass, intestinal perforation, perianal and intestinal fistulas; 4) history of contact with TB; 5) constitutional symptoms such as fever, anorexia, and weight loss. Complaints can also include changes in bowel patterns, such as diarrhea or alternating diarrhea and constipation. Gastrointestinal TB lesions are divided into 3 categories: ulcerative type (60%), hypertrophic (10%), and mass-like or hypertrophic lesions resembling ulcers (30%). Ulceration and lumen narrowing are the most frequently encountered lesions. Ulcerative lesions are commonly found in patients with immune system deficiencies, whereas hypertrophic lesions are found in patients with a good immune system. Hypertrophic lesions resembling ulcers are most commonly found in ileocecal TB compared to TB in other intestinal segments.



Malnutrition and TB are major health issues that are interconnected. Malnutrition can be a risk factor for TB disease, and TB can cause malnutrition. Malnutrition, whether energy-protein malnutrition or micronutrient deficiency, leads to secondary immunodeficiency, increasing the risk of infections like TB. Malnutrition is a risk factor for TB and can be found both after and before TB infection. In the case of energy-protein malnutrition (EPM), there is a disruption in the formation of cell-mediated immunity (CMI), worsening TB infection. Conversely, infection can cause weight loss, leading to malnutrition status.

The first choice for intestinal TB therapy is OAT. When a patient is suspected of having intestinal TB, OAT can be given at full dosage. And surgery is the second option for managing intestinal TB with complications. Management of intestinal TB with complications such as bowel obstruction, fistula, and perforation is surgery.

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Recommendations for nutritional management in TB patients include collecting subjective and objective data as the basis for nutritional assessment, determining nutritional needs according to the medical nutrition diagnosis, providing micronutrient and specific nutrition supplementation, and educating on nutrition according to the initial nutritional status and during treatment. Additionally, it is also necessary to consider that patients with TB infection will experience increased energy expenditure due to active infection, loss of appetite, and protein wasting, resulting in most being in a state of moderate to severe malnutrition. WHO's recommendation for the macronutrient composition in TB patients based on balanced nutrition is 50–60% carbohydrates, 15–20% protein, and 25–30% fat. During the nutritional intervention, proper monitoring is required to prevent side effects such as hyperglycemia, intake intolerance, or diarrhea that can lead to dehydration.

CASE

This case report is about a 31-year-old woman diagnosed with intestinal tuberculosis with severe malnutrition and cachexia who was admitted to the emergency department of RSUPNCM on January 4, 2018. The patient was admitted with the main complaint of worsening abdominal pain for 1 week prior to admission, and underwent surgery on the 5th day of hospitalization, which included laparotomy and loop ileostomy creation. The pain is felt like being stabbed and twisting throughout the entire abdomen accompanied by nausea and vomiting but without fever. Vomiting is preceded by nausea, with a frequency of 5-6 times/day, and the vomit consists of a yellowish-green liquid that tastes bitter. The patient has not had a bowel movement for 2 days but can still pass gas. The patient was admitted to the hospital thru the emergency department of RSUPNCM and was referred from a type B private hospital in West Karawang with suspected intra-abdominal mass. During the illness, there was a decrease in appetite and intake, resulting in a 31% weight loss over 6 months. The patient's younger sibling was diagnosed by a doctor with pulmonary tuberculosis but stopped taking medication because they got bored of it.

The patient was admitted thru the emergency department and was treated for 2 days for observation, as well as the placement of a central venous line in the neck and a feeding tube thru the nose. The patient was diagnosed with an intra-abdominal tumor suspected to be colon adenocarcinoma with a differential diagnosis of lymphoma. On the 3rd day of hospitalization, the patient was moved to room 401 and was still fasting as per the attending physician's orders.

Upon examination, complaints of nausea and vomiting were still present but had decreased, and there was NGT output of 200 mL/24 hours, green in color. During the physical examination, the patient appeared to be in moderate pain, conscious and alert, with vital signs showing blood pressure at 100/60 mmHg, pulse rate at 82 beats per minute, respiratory rate at 18 breaths per minute, and temperature at 36.5°C. The conjunctivae were pale, the sclerae were not icteric, and the nose was fitted with an NGT draining a production of 200 mL/24 hours, green in color. The neck is fitted with a CVC and there is no hyperemia around it, the chest appears with a barrel-shaped rib cage, the lungs appear symmetrical both statically and dynamically, with vesicular breath sounds and no wheezing. Abdomen flat, normal bowel sounds, supple palpation, tenderness in the epigastrium. In the extremities, there is no edema but there is muscle wasting in all four extremities. Non-ambulatory functional capacity and grip strength are weaker than the examiner's.

The latest laboratory data upon the patient's admission to the emergency department showed a decrease in hemoglobin (Hb) levels to 9.98 g/dL, hematocrit (Ht) to 30.9%, leukocytes to 9,180/μL, thrombocytosis to 547,000/μL, SGOT to 21.3; SGPT to 15.2 U/L, random blood glucose (RBG) to 117 mg/dL, urea to 17.2 mg/dL, creatinine to 0.34 mg/dL, hyponatremia (Na) to 126, potassium (K) to 4.5, chloride (Cl) to 92 mEq/L, and hypoalbuminemia to 2.92 g/dL.

On the 5th day of hospitalization, an exploratory laparotomy, adhesiolysis, and loop ileostomy were performed, resulting in a post-operative diagnosis of intestinal tuberculosis, ileal, omental, and cecal adhesions. Post-operatively, the patient was admitted to the ICU for 6 days for hemodynamic evaluation. On the first post-operative day in the ICU, the patient was still fasting as per the attending physician's orders and was given parenteral nutrition Nutriflex® peri lipid 1250 mL/24

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hours. However, within 48 hours, enteral nutrition in the form of clear fluid dextrose 5% 30 mL/hour was provided in combination with parenteral nutrition. Post-operative day 3, enteral nutrition was started thru NGT in the form of liquid food. In the next ICU monitoring, nutrition was gradually increased step by step until H+6, when all nutritional needs were met orally and the feeding tube was removed.

The patient is in room 401 post-operation on day 7, with complaints including pain at the surgical site. Solid intake in the form of extra congee can be well tolerated. On the 13th day of treatment, the patient's clinical condition improved further, so a transfer to a regular ward was planned. The patient was discharged by the attending physician on the 15th day of hospitalization, 10 days post-surgery. On the last day of hospitalization, the patient was able to finish rice porridge combined with liquid food. The discharge therapy provided by the attending physician included anti-TB medications: rifampicin, INH, pyrazinamide, ethambutol, and vitamin B6. Patients are also advised to follow up with the pulmonary and digestive surgery clinics in the next 2 weeks. Nutritional education includes what happens to the digestive tract due to surgery and the types of intake that need to be increased due to the modifications in the digestive tract, food groups that can cause blockages in the stoma, and foods that can support the wound healing process.

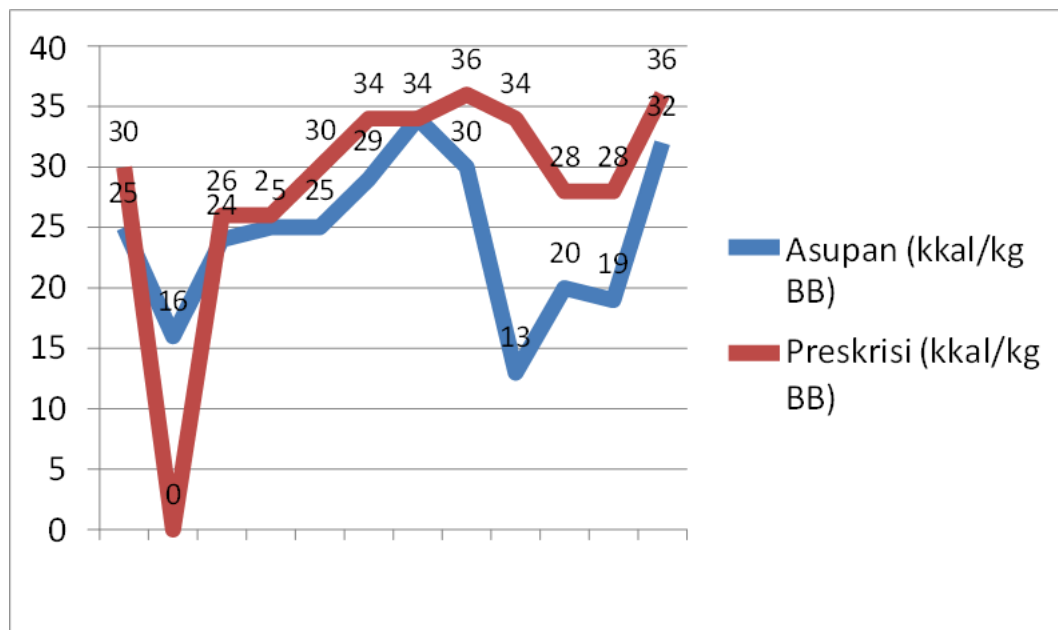


Figure 1. Comparison of patient intake and prescriptions during hospitalization

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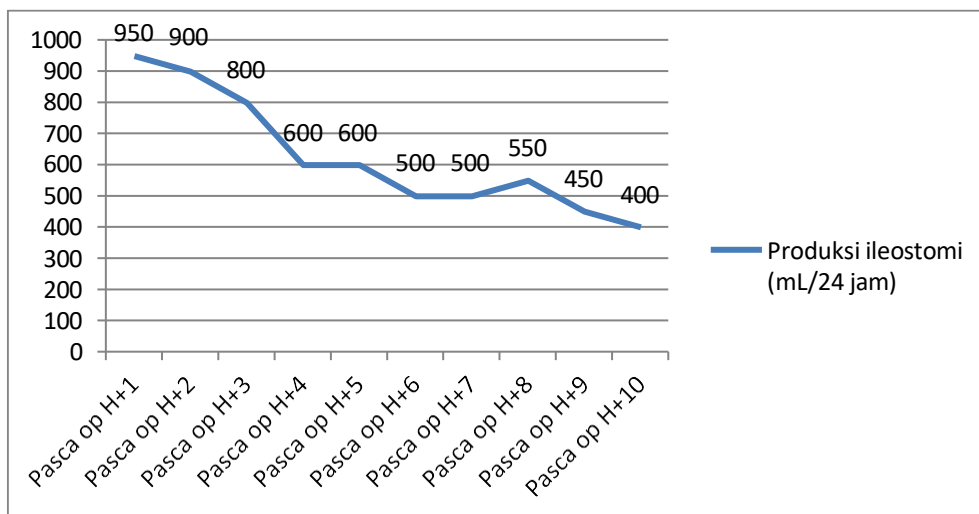


Figure 2. ileostomy production during hospitalization

CONCLUSIONS

Nutritional medical therapy in patients with intestinal tuberculosis undergoing surgery refers to the ERAS recommendations for perioperative nutritional support and nutritional guidelines for tuberculosis with severe malnutrition and cachexia. Nutritional support is adjusted according to the patient's clinical condition and tolerance. Nutritional education has been provided during hospitalization and at the time of discharge.

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