Comparison Of Enteral Nutrition Using Intermittent Feeding And Gravity Drip To Decreasing Gastric Residual Volume In Palliative Care Of Critical Patients

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Abstract.

Critical patients experiencing malnutrition conditions can increase mortality and complications as well as prolong the length of stay, costs and healing time. The aim of the study was to determine the ratio of residual volume in critically ill patients receiving enteral nutrition through the NG tube using intermittent feeding and gravity drip methods. The type and design of this study used a quasy experimental two-group design by dividing respondents into two different groups, where the first group was given nutrition using the intermittent feeding method, while the second group used the gravity drip method. The population in the study were all critical patients who were treated in the Intensive Care Unit at Muhammadiyah Semarang Hospital. The sampling technique used was consecutive sampling, namely patients who met the inclusion criteria (using NGT and receiving enteral nutrition diet) with a total sample of 5 people. Measurement results Comparison of the average residual volume in the administration of enteral nutrition between the intermittent feeding and gravity drip methods showed that the average residual volume value 1 hour after administration using the intermittent feeding method (11 cc) was less than the gravity drip method (17,1 cc). The average residual volume 2 hours after administration with the intermittent feeding method (1,2 cc) is also less than the gravity drip method (4,7 cc). This study concludes that the intermittent feeding method of enteral nutrition has less gastric residual volume or is more effective than the gravity drip method.

Keywords: Critical Patients, Enteral Nutrition, Gravity Drip, Intermittent Feeding, Gastric residual volume

INTRODUCTION

Critical patients are patients who are physiologically unstable, thus experiencing a complex hypermetabolic response to trauma, pain experienced that can change the body's metabolism, hormonal, immunological and nutritional homeostasis. This situation can lead to an increase in metabolism and catabolism which can result in malnutrition (Menerez, 2012). This condition can increase mortality and complications as well as prolong the length of stay, costs and healing time. Palliative care is urgently needed to solve problems in critically ill patients where palliative action is an interdisciplinary treatment to optimize the physical, psychosocial and spiritual symptoms of patients and their families whose quality of life is disrupted by serious life-limiting illnesses. Up to 75% of patients treated in the intensive care unit (ICU) experience troublesome symptoms, including the main problem being nutritional insufficiency, which requires a long recovery time.

Malnutrition is a common problem encountered in most patients admitted to the hospital. Critically ill patients who are treated in the ICU require technological support in their management, especially in conditions of multiorgan problems that cause malnutrition (Schulman, 2012). As many as 40% of adult patients are malnourished by the time they arrive at the hospital and two-thirds of all patients experience worsening nutritional status during their hospital stay. Critical patients who are treated in the Intensive Care Unit (ICU) often receive inadequate nutrition due to wrong estimates of the patient's nutritional needs and can also be caused by delays in starting nutrition (Menerez, 2012). This is supported by Montejo (2011) study of patients with hip fracture accompanied by protein energy malnutrition, almost all critically ill patients experienced anorexia, inability to eat due to decreased consciousness, sedation, and intubation.

Proper management of nutritional support will provide several benefits. The first is to maintain nutritional status so that it does not decrease further, prevent or reduce the possibility of metabolic and infectious complications, mechanical complications and interactions of drugs and nutrients which in the end are expected to be able to reduce morbidity and mortality rates, and can shorten the length of stay in the ICU. One of the management in meeting the needs of nutrition and fluids in critical patients can

be done enterally. Enteral nutrition or enteral nutrition is nutrition given to patients who cannot meet their nutritional needs through the oral route, nutritional formulas are given through a tube into the stomach (gastric tube), nasogastric tube (NGT), or jejunum can be done manually or with the help of a machine pump. (gastrostomy and percutaneous jejunum) (Kim & Smi, 2011). There are 2 methods of providing enteral nutrition, namely gravity drip and intermittent feeding (Montejo, 2011).

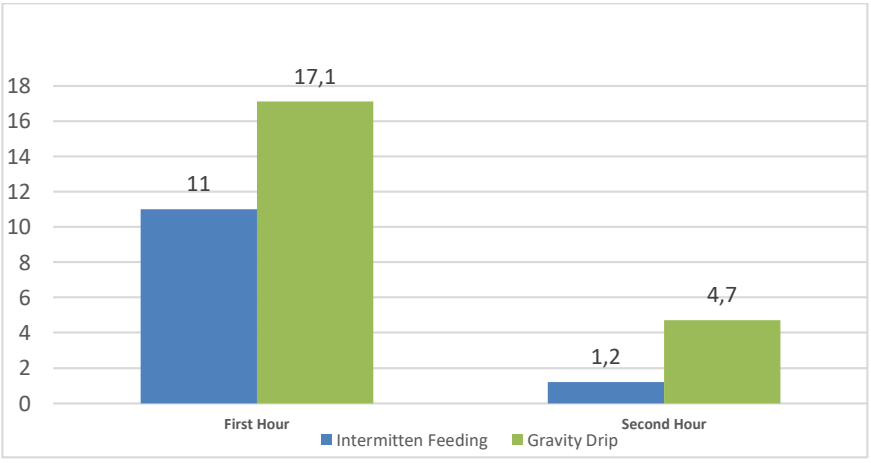
From a preliminary study that was conducted in the ICU Room of Roemani Muhammadiyah Hospital Semarang for 1 week, the number of patients who had a nasogastric tube (NGT) attached was 47% (7 patients out of 15 patients) and enteral nutrition was given by means of gravity drip. This is also supported by the author's experience when conducting clinical practice in the ICU room at 4 different hospitals, providing enteral nutrition using the gravity drip method and slow boluses. The author observed that before giving enteral nutrition, gastric aspiration was carried out and on average there was still a lot of residual output (± 50 cc). The use of the gravity drip method can put you at higher risk of regurgitation or vomiting, pulmonary aspiration or pneumonia. This is because the condition of a full stomach due to gravity drip administration will slow down gastric mortality and slow gastric emptying. Based on this phenomenon, the writer is interested in knowing more about the residual volume ratio in critical patients who receive enteral nutrition through the NGT using the intermittent feeding and gravity drip methods.

METHODS

The population in this study were all patients treated in the Intensive Care Unit (ICU) Roemani Muhammadiyah Hospital Semarang (5 respondents). The entire population is used as the research sample. The sampling technique used was consecutive sampling, namely looking for patients who met the inclusion criteria (adult patients who had NGT installed, were in stable condition, and were receiving enteral nutrition). The type of research used is a quasi experiment with a two-group design. The instrument used to measure the residual volume of gastric is using an NGT syringe and patient monitoring records. In this study, respondents were divided into two different groups, where the first group was given intervention using the intermittent feeding method, while the second group was given intervention using the gravity drip method. Each respondent received intervention at three points in the time of administering enteral diet, namely at 08.00 AM, 12.00 AM and 5.00 PM. Residual volume measurements were carried out twice, namely 1 hour after and 2 hours after the action of providing nutrition. Monitoring of enteral nutrition administration and measurement of residual volume in respondents was carried out for 3x24 hours.

RESULTS AND DISCUSSION

Following are the results of measuring the average residual volume in enteral nutrition between intermittent feeding and gravity drip methods



Picture 1. The average residual volume in enteral nutrition between intermittent feeding and gravity drip methods.

The picture 1 shows that the results of measuring the comparison between the average residual volume in enteral nutrition using the intermittent feeding and gravity drip methods obtained an average residual volume value 1 hour after administration using the intermittent feeding method (11 cc) less than the gravity method drip (17,1 cc). The average residual volume 2 hours after administration with the intermittent feeding method (1,2 cc) is also less than the gravity drip method (4,7 cc).

The results of this study were also supported by a study from Putri (2015), which stated that in terms of providing enteral nutrition using intermittent feeding and gravity drip for 3 days, it was found that intermittent feeding was given with the help of an infusion pump machine with an adjustable flow rate. setting in units of ml/hour, the amount of residue is less than gravity drip. This study was conducted at the ICU Gatot Soebroto Army Hospital, Ditkesad, Jakarta, in July 2015. The results of a case study of 5 respondents who had ventilators installed found that 60% were aged 43-48 years, 60% were female, 100% (5 respondents) had ventilators installed. caused by inadequate breathing. 100% (5 respondents) experienced a decrease in consciousness with an average GCS of 7-8, 100% (5 respondents) attached to a ventilator were given enteral nutrition using the NGT and given by intermittent feeding and gravity drip methods, results from intermittent feeding after 1 hour of nutrition enteral, there was a residual amount of 5 ml each in 2 respondents (40%), 12 ml in 1 respondent (20%), whereas in gravity drip, 1 respondent was obtained with a residual amount of 58 cc, 2 respondents (40%) respectively 100 cc each.

Another study that supports the results of this study is the study of Munawaroh & Handoyo (2012), which states that the residual volume of the stomach after giving nutrition to the intermittent feeding method of enteral nutrition is less than the residual volume of the stomach to giving enteral nutrition using the gravity drip method so that the provision of enteral nutrition the intermittent feeding method is more effective than the gravity drip method with a p value of 0.045.

The advantage of the intermittent feeding method is the readiness of the stomach to receive enteral nutrition because it is given in stages, a stomach that is not fully filled will be able to digest food more quickly and empty the stomach, thereby reducing the risk of aspiration (Jayarasti, 2009). This will certainly have more effect on critical patients whose critical phase has just been resolved and is in line with one of the goals of providing nutrition to critical patients, namely preventing complications that arise due to inaccuracies in administering enteral nutrition, compared to providing enteral nutrition with gravity support (Gwinnutt, 2009).

While the gravity drip method is a feeding method that uses a funnel (50 ml syringe) and is carried out above the level of the stomach with the speed of administration determined by gravity. In the administration of enteral nutrition with the gravity drip method, enteral nutrition quickly enters the stomach (5-10 minutes) (Putri, 2015). A large volume in the stomach results in slow gastric motility, stomach contents are increasingly acidic which will affect the opening of the pyloric sphincter, also causes gastric distension which causes enterogastric reflexes, so that gastric emptying becomes slower. This administration can be more at risk of regurgitation / vomiting, pulmonary aspiration or aspiration pneumonia. This is associated with a limited gastric capacity and a greater residual gastric volume, due to slower gastric emptying. Gastric emptying reflex is inhibited by full contents, high fat content and acid reaction at the beginning of the small intestine (Jayarasti, 2009).

CONCLUSION

Comparison measurement between the average residual volume in enteral nutrition using the intermittent feeding and gravity drip methods obtained an average residual volume value 1 hour after administration using the intermittent feeding method (11.0 cc) less than the gravity drip method (17.1 cc). The average residual volume 2 hours after administration with the intermittent feeding method (1.2 cc) is also less than the gravity drip method (4.7 cc). This shows that providing nutrition through intermittent feeding is more effective than gravity drip.

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