

Frequently Asked Questions and Current Answers to the KEPAN Nursing Study Group by Nutrition Nurses Working in Turkey

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ABSTRACT

Nutrition therapy is a critical intervention in the continuation of vital functions for patients whose nutritional needs cannot be met via normal nutrition. In recent years, thanks to the developments in medicine and technology, enteral and parenteral nutrition has been widely used. Nutrition therapy requires good care and teamwork at the beginning, treatment process and termination stages. The aim of this review is to provide information in line with the current literature on the issues of nutritional care practices, about which nurses working in nutrition units in Turkey are often curious. In addition, this review aims to raise awareness about the duties and responsibilities of nurses in nutritional therapy, who are members of the nutritional support team.

Keywords: Enteral nutrition, nursing, nutritional care, parenteral nutrition

INTRODUCTION

Nutrition is a mandatory action to take the nutrients needed by the body in sufficient quantities and at appropriate times in order to protect and improve health and the quality of life.¹ Mortality and morbidity rates are higher in patients who do not have adequate and balanced nutrition.¹ Nutritional therapy is applied for patients in cases in which nutrition cannot be achieved naturally or energy and calorie intake is insufficient due to various factors such as cancer, trauma, chronic diseases, and surgical interventions.^{1,2} Factors such as increased average life expectancy in the world and in our country, increased incidence of chronic diseases, increased life expectancy with chronic diseases, and surgical interventions have led to an increase in the number of patients in need of nutritional therapy.²⁻⁶ Nursing care has an important place in the safe application of enteral nutrition (EN) or parenteral nutrition (PN) treatments and in the follow-up of patients.⁷ Responsibilities and duties of nurses related to nutritional therapy differ among countries and even among institutions.⁶⁻⁸ While the duties and responsibilities of nutrition nurses in Europe have been defined, the duties and responsibilities of certified nutrition nurses related to the nursing care in nutritional therapy have not been defined

in our country.^{7,9,10} This may cause nutrition nurses to experience dilemmas in clinical practice and patient care. Currently, according to the Regulation on the Amendment of the Nursing Regulation published in the official gazette in our country in 2011, intensive care nurses are responsible for determining the nutritional needs of the patients (enteral and parenteral nutrition), planning and implementing the nursing care according to their needs, and ensuring the continuity of the sterilization of the devices used in nutrition.¹¹

Nurses have important responsibilities in the follow-up of patients receiving nutritional therapy and in observing and recording treatment-related complications. With an effective nursing care, nutritional therapy can be applied correctly and effectively, and the development of complications in the patient can be prevented.^{7,12} In this direction, a Nursing Study Group was formed under the Turkish Society of Clinical Enteral and Parenteral Nutrition (KEPAN) in 2015, and studies were initiated to standardize the practices of nurses working in nutrition units in Turkey in line with the literature. The administrative staff of the study group consists of experienced nutrition nurses working in the clinical nutrition unit and doing clinical research in the field and academic nurses. Within the scope of

the scientific activities of the study group, training programs are organized for nutrition nurses. In addition to these trainings, a mobile messaging application group (Nutrition Nurses WhatsApp group) was established by the members of the KEPAN Nursing Study Group, where nutrition nurses can ask questions to be answered by the members of the study group across Turkey. This platform has been actively used since 2015 and is currently in contact with approximately 300 nurses. Moreover, nutrition nurses working in various cities of Turkey can reach the KEPAN Nursing Study Group via e-mail. In this review, 11 questions most frequently asked by nutrition nurses in the Nutrition Nurses WhatsApp group and via e-mail were answered in line with the studies and guidelines in the literature. In this respect, it is thought that this article can be a resource that nutrition nurses can refer to in cases they encounter frequently in practice.

Frequently Asked Questions on Enteral Nutrition

Nutrition nurses directed some situations that they encountered and hesitated during their routine work in the clinic to the Nutrition Nurses WhatsApp group and the KEPAN Nursing Study Group via e-mail. Based on the current literature, these questions were answered by the study group, and the questions and answers were recorded. According to incoming data, nutritional nurses frequently ask 7 questions about EN. Five of these questions are about the administration of enteral nutrition therapy and the other 2 are about the complications of EN therapy.

How Should the Water Need of the Enterally Fed Patient Be Met?

The amount of fluid needed by the patient is calculated by the physician considering the patient's weight, the

number of calories given, the current disease, and clinical condition. However, the liquid ratio of the given product and also the amount of the water to be used for diluting the drugs and washing the tube should be considered.^{1,4,5}

What Are the Findings That the Nurse Should Observe Regarding Fluid–Electrolyte Imbalance in an Enterally Fed Patient?

In enterally fed patients, symptoms such as edema or dehydration signs, muscle twitches or spasms, dryness of the mucous membrane, and changes in consciousness may occur due to fluid–electrolyte imbalance.⁶⁻¹⁰ Nurses should observe patients in terms of such findings, monitor vital signs, amount of fluid intake and loss, diarrhea, vomiting, fistula or ostomy outputs, daily weight changes, and laboratory findings and inform the nutrition team.^{6,7,12,13}

When Can the Feeding of Patient Be Started After the Percutaneous Endoscopic Gastrostomy tube is placed?

There is no consensus regarding the time to start feeding after percutaneous endoscopic gastrostomy is opened. The traditional approach in clinics tends to start enteral feeding 24 hours after percutaneous endoscopic gastrostomy is opened. In a meta-analysis study, it was stated that starting enteral nutrition in the early and late periods did not differ in terms of the development of complications.¹³ Due to the results showing that early initiation of nutrition is safe for patients, the nutrition is well tolerated, and the length of hospital stay is shortened, it is recommended to start feeding in ≤ 4 hours according to the American Society of Parenteral and Enteral Nutrition (ASPEN) guideline and after 2-4 hours according to the European Society for Clinical Nutrition and Metabolism guideline.¹⁴⁻¹⁶

What Should Be Considered When Administering Drugs From Percutaneous Endoscopic Gastrostomy?

Drug-related properties such as the suitability of the drug that will be given through the gastrostomy tube for being administered with the nutritional product, the stability of the drug, possible drug interactions, the diameter of the feeding tube, and the position of the tube should also be evaluated.¹² The following American Society of Parenteral and Enteral Nutrition recommendations should be considered when administering medication from the gastrostomy tube.¹⁵

- Medication should not be added directly into the enteral nutrition product.
- Opinion of the clinical pharmacist should be sought regarding the form, side effects, and interaction of the drug requested by the physician with the enteral product given to the patient.

Main Points

- The KEPAN Nursing Study Group aims to provide evidence-based and standardized nursing care for patients receiving nutritional therapy. For this reason, a WhatsApp group has been established with nurses working in Turkey to provide information exchange among nurses, and the group's executive board makes literature-based explanations on issues about which nurses have difficulty in clinical care.
- In this communication process, it has been revealed that some topics are widely wondered by nutrition nurses and that there is no resource that can be presented as a guideline in this field.
- It is expected that this review will be a resource frequently used by nutrition nurses and will pave the way for nursing studies in this field.

- Each drug should be administered separately through the feeding tube.
- If possible, liquid dosage forms of drugs should be used.
- Immediate-release solid dosage forms approved for enteral administration according to the pharmacist's instructions may be used. Drug preparation techniques may include:
 - crush the simple compressed tablets into a fine powder and mix them with purified water;
 - open the hard gelatin capsules and mix the powder containing the immediate-release drug with pure water.
- Drugs should not be mixed together.
- Only clean enteral syringes (≥ 20 mL) should be used to administer drugs via the enteral route.
- Appropriate tube irrigation should be performed in drug administration:
 - stop feeding and flush the tube with at least 15 mL of distilled water before administering medication;
 - administer the drug using a clean enteral syringe;
 - re-wash the tube with at least 15 mL of distilled water, taking into account the patient's volume status;
 - administer the next medicine;
 - rinse the tube one last time with at least 15 mL of distilled water.
- Oral syringes labeled "for oral use only" should be used for drug administration through the feeding tube.
- Enteral nutrition therapy can be delayed for 30 minutes or more, when appropriate, to prevent changes in the bioavailability of the drug.
- In cases of doubt about drug administration, it is a correct approach not to administer the drug until certain information is obtained.

How Often Should Gastric Residual Volume Monitoring Be Performed in Intensive Care Patients?

There is no clear consensus on the threshold value, monitoring frequency and protocol of GRV in current studies and guidelines. Moreover, studies at the level of evidence directly linking GRV and aspiration pneumonia are not sufficient. Although it is considered that GRV monitoring is not required routinely in the care of critically ill patients, ASPEN recommends that patients be evaluated for gastrointestinal intolerance every 4 hours and that the GRV threshold value be considered as >500 mL, taking into account other intolerance findings such as nausea, vomiting, and abdominal distension.¹⁵ Similarly, the European Society of Intensive Care Medicine recommends adding prokinetic agents to the treatment plan in cases where GRV is >500 mL, reducing the nutrition rate by half by

evaluating other intolerance findings and rechecking it every 6 hours.¹⁷

Can the Patient Be in the Prone Position During the Enteral Nutrition Process?

It is recommended that the patient's head be elevated $30-45^\circ$ during enteral nutrition.¹⁵ However, if the patient's condition requires feeding in the prone position, EN can also be provided in this way.¹⁸ In a systematic review by Machado et al.¹⁹ in which they investigated the effect of prone position on GRV and other clinical outcomes in adult and pediatric patients hospitalized in tertiary intensive care unit, 2 of the 4 studies did not show any difference in GRV in prone and supine positions [Van der Voort and Zandstra²⁰ Lucchini et al²¹]. In 1 study, GRV was reported to be higher in the prone position²² and in another study, GRV was higher in the supine position.²³ Feeding in the prone position alone is not a contraindication or limitation for EN.²⁴ Oral hygiene of the patient should be ensured, an evaluation should be made every 4 hours in terms of intolerance, and prokinetic agents should be considered if clinically necessary.¹⁷ Post pyloric tube feeding should be preferred in patients with a high risk of aspiration or with high GRVs.¹⁵

Frequently Asked Questions About Parenteral Nutrition

Nutrition nurses consulted the KEPAN Nursing Study Group via the Nutrition Nurses WhatsApp group and e-mail about some of the situations that they encountered and hesitated about PN during their routine work in the clinic. Based on the current literature, these questions were answered, and the questions and answers were recorded. Four frequently asked questions about PN from nutrition nurses and their answers are given below.

Can the Port Be Used for Parenteral Nutrition?

Parenteral nutrition therapy can be provided by peripheral or central venous access, depending on the osmolarity of the nutritional solution and the duration of PN. In cases where the osmolarity of the PN solution is above 900 mOsm/L and PN is required for a long time (more than 10-14 days), PN therapy can be applied through implanted ports through the central venous access routes.^{9,10,17,25}

What Should Be Done in Case of Extravasation During Parenteral Nutrition?

In order to prevent the development of extravasation, the catheter insertion site should be evaluated at least once a day for symptoms such as pain, tenderness along the

vein, redness and warmth before PN treatment, and more frequently in the first hours of the day when nutritional therapy is started. It is recommended that the peripheral venous route be observed at 30-minute intervals and the central venous route at 1-hour intervals for the development of complications, especially during the use of 2-in-1 PN solutions.²⁶

In the safe application of parenteral nutrition therapy, maintaining the patency of the venous access in catheter care and observing the catheter insertion site for catheter-related complications are important nursing interventions. When extravasation findings are detected, the infusion of the nutritional product is stopped immediately.²⁶⁻²⁸ The site should be followed up for redness, pain, etc. Dermatology consultation may be requested.²⁶⁻²⁸ Methods such as local cold application and lotion or cream application may be preferred.¹⁷

What Should Be Considered in the Filling and Transportation of Parenteral Nutrition Products?

According to the "Guideline for Safe Practices for Parenteral Nutrition" prepared by the Republic of Turkey Ministry of Health, PN solutions should be prepared under the responsibility of the pharmacist. In the clinical setting, PN bags can be stored on the shelf of the refrigerator for 6 days at 4°C and for 24 hours at room temperature, as long as their asepsis is intact. Manufacturer's recommendations should be taken into account for ready-to-use commercial products. Intra-venous is attached to the PN bag or if a drug that will destabilize within 24 hours (trace element, phosphorus, etc.) is added to the bag, the bag should be used within 24 hours. Parenteral nutrition solutions should be placed in closed and locked trolleys and sent to clinics and delivered by signature.²⁹

CONCLUSION

The Turkish Society of Clinical Enteral and Parenteral Nutrition Nursing Study Group aims to continue its studies for the realization of nutritional care practices in line with the information having high level of evidence in the light of the literature. In this review, the questions frequently asked to the study group by the nutrition nurses in our country were determined and the answers to these questions were compiled. In this direction, it is thought that this review will guide the nurses working in the nutrition units for the safe application of nutritional therapy.

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