















# Determination of the patients and management of their nutritional therapies with a new algorithm and a new multidisciplinary team for dysphagia

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## ABSTRACT

Many studies have shown that the nutritional status of patients significantly affects the prognosis of treatment. The term dysphagia is used to describe swallowing disorders in clinical trials. This is the most difficult group about the ways in which nutritional treatment should be given to the patients who have functional gastrointestinal system but have the risk of aspiration due to dysphagia and blurred consciousness. A new algorithm has been developed to help clinicians make nutritional treatment decisions in this patient group in accordance with the experience of the Dysphagia Unit operating in our hospital since May 2017. The basic objective of the algorithm is to supply all nutritional needs of patients with dysphagia by minimal invasive procedures, minimal risk of infection, and minimal complication.

**Keywords:** Algorithm, dysphagia, clinical nutrition unit, dysphagia unit, swallowing disorders

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## Introduction

Many studies have shown that the nutritional status of patients significantly affects the prognosis of treatment. The treatment of malnutrition and the appropriate support for the patient during treatment prevent bad clinical outcomes and reduce mortality. The treatment plan should be specified according to patient and treatment options, taking into account the general indications of nutritional supplementation. The most difficult group about the ways in which nutritional treatment should be given is patients who have functional gastrointestinal system but have the risk of aspiration due to dysphagia and blurred consciousness. On the other hand, avoidance from complications of total parenteral nutrition, instability in the timing of the use of the nasogastric tube, or percutaneous endoscopic gastrostomy (PEG) tube is the most

common problem in this patient group.

The term dysphagia is used to describe swallowing disorders in clinical trials. Patients with dysphagia may be encountered in the hospital or community. The severity of dysphagia can be in different degrees, or it can affect the lives of individuals in different dimensions. Approximately 50% of the elderly with dysphagia ate less, 44% had weight loss, and 41% experienced anxiety or panic attacks during mealtimes (1). Therefore, there is a close relationship between dysphagia and nutritional status.

Patients with signs of dysphagia, even if they are obvious or slightly evident, should be evaluated by health professionals experienced in the diagnosis and treatment of dysphagia. These professional teams should include clinical nutritionists, otorhinolaryngologists, neurologists, and swallowing physiotherapists.

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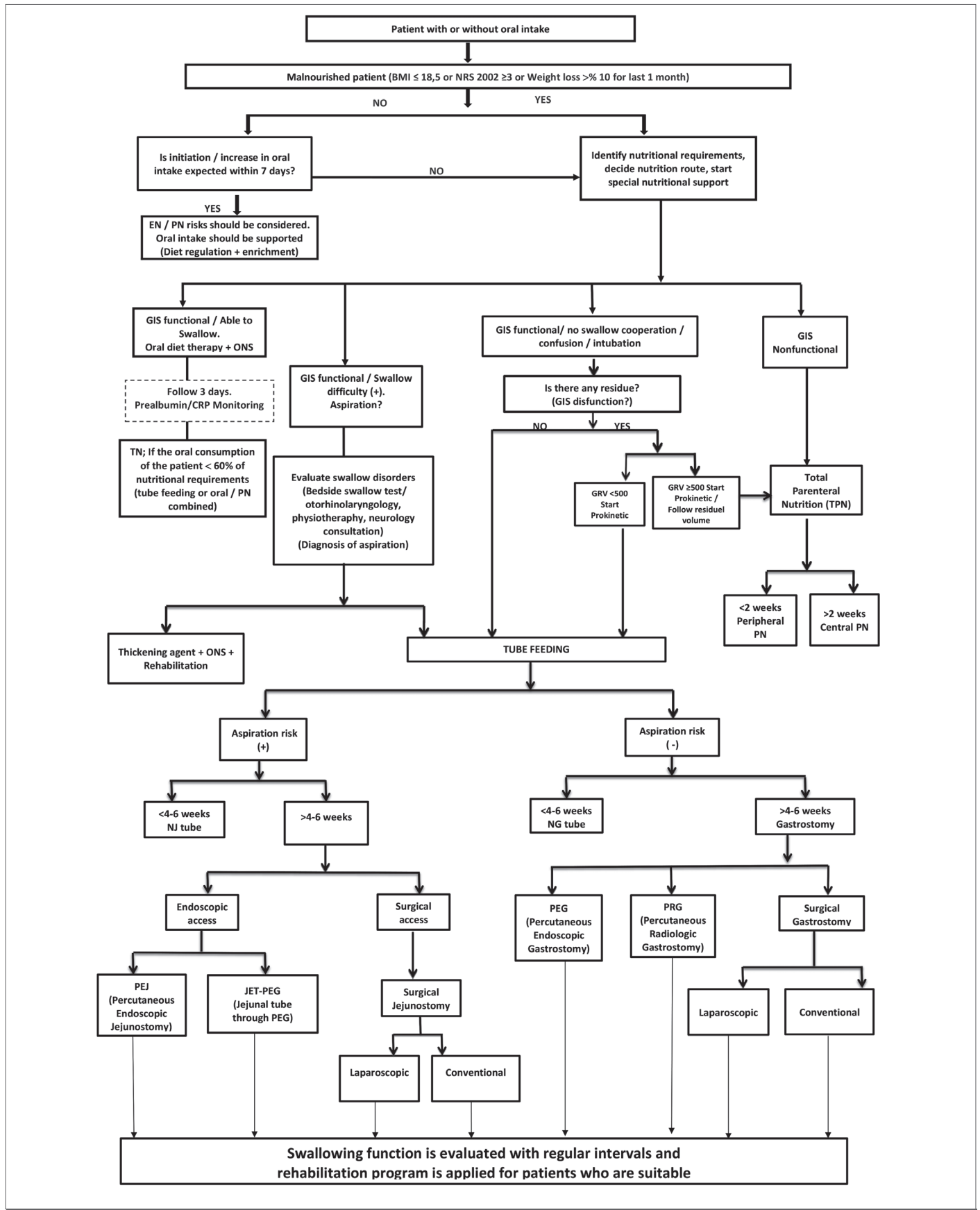


Figure 1. The algorithm used in the diagnosis and treatment of patients with malnutrition, especially with dysphagia

The aim of the present study was to present a treatment algorithm that can be used in the nutritional management of patients with dysphagia by evaluating the literature information and the experiences of the dysphagia team in our hospital.

## Methods

The Dysphagia Unit of our hospital has been operating since May 2017. The 1-year experiences of the Dysphagia Unit have been evaluated.

The Dysphagia Unit in our hospital is a multidisciplinary team. It consists of neurologists, otorhinolaryngologists, and physiotherapy specialists in addition to the Clinical Nutritional Unit that includes gastrointestinal surgeons, gastroenterologists, dieticians, and nurses.

All patients with dysphagia are evaluated by this team. Swallowing dysfunctions are evaluated by otorhinolaryngologists with bedside swallowing test and direct laryngoscopy (these evaluations will be made by the fiberoptic endoscopic evaluation of swallowing, which is the most objective evaluation method) in the coming period. Central/peripheral nervous systems and neuromuscular diseases are evaluated by neurologists. As a result of these evaluations, patients who are suitable for swallowing physiotherapy are followed up by physical therapists. Patients whose diagnosis and rehabilitation process are completed are taken over by the Clinical Nutritional Unit, and nutritional therapy is planned.

There was a need to establish an algorithm to standardize the procedure and to provide practical convenience to all clinicians after a 1-year experience of the Dysphagia Unit.

The algorithm of this multidisciplinary study is presented in Figure 1.

## Discussion

Health professionals should keep in mind that dysphagia may develop in people with acute or chronic neurological diseases and those who have undergone surgery or radiotherapy to the upper aerodigestive tract.

The cause of dysphagia can be either acute cerebral event, progressive neurological disorders, trauma, surgery, or diseases of the upper aerodigestive tract; it may also develop or worsen as a result of sepsis, respiratory diseases, or cognitive disorders (2).

The estimated prevalences of oropharyngeal dysphagia are 60% in nursing home residents and 12%-13% in hos-

pitalized patients (3). Dysphagia prevalence in the general population >50 years old was reported to be 16%-22%. Specific conditions that may present with dysphagia include 27%-100% of patients with stroke, adults with learning disabilities (36% of patients with learning difficulties in the hospital and 5.3% of those in the community present with dysphagia) and between 48% and 100% of individuals with motor neurone disease (4). However, there are significant differences in the mentioned prevalences due to the time required to complete the evaluation and the variability in the application period (e.g., in stroke, the incidence of presentation with aspiration risk is 51% on admission, 27% on day 7, 6.8% at 6 months, and 2.3% after 6 months) (5).

If the diagnosis of dysphagia is delayed, this will lead to deficiencies in food and fluid intake that will result in nutritional deficiencies, infection, sepsis, and pneumonia. To avoid eating because of dysphagia may also lead to social isolation and high morbidity, mortality, and cost (3, 6). As a result, particularly since it is not always obvious that a patient has dysphagia, the patient should be assessed and managed by a multidisciplinary and skilled team.

Owing to the complex nature of dysphagia and the variation of its presentations, we recommend a multidisciplinary approach to make decisions that are based on individual patients' symptoms rather than specific diagnosis. The management of patients with dysphagia should take into account the appropriateness of intervention in individual cases, and all ethical/legal issues and decision processes should include the patient, family, and dysphagia teams. Dysphagia specialists should inform the clinical teams, especially before the clinician decides on invasive procedures, such as PEG.

In the management of patients with dysphagia, the patients should also be evaluated for swallowing disorders and nutritional and social status by health professionals experienced on the subject:

- The risks and benefits of modified oral nutrition support and/or enteral tube feeding,
- Recurrent pulmonary infections,
- Mobility,
- Dependency on others while eating,
- Perceived palatability and appearance of food or drink,
- Level of alertness,
- Compromised physiology,
- Impaired oral hygiene,
- Compromised medical status,

- Metabolic and nutritional requirements,
- Immune system disorders (e.g., immunocompromized),
- Presence of comorbidities.

The nutritional status of the patients is an important parameter in the early or recovery period following cerebrovascular disorders. Poor nutritional status is associated with delayed recovery, mortality, infectious complications, swallowing difficulty, and reduced activities of daily living (ADLs) (7, 8). The number of patients with protein-energy malnutrition was shown to increase by approximately 60% (16.3%-26.4%) in the first week after a stroke, leading to a higher mortality rate and a lower ADL (9). Nutritional support for patients with cerebrovascular disorders in the early period is known to result in better clinical outcomes, with studies showing that early nutritional therapy, especially with enteral feeding, improves nutritional status and is associated with lower mortality rates (10). An intensive nutritional therapy in patients with stroke may improve physical function to a greater extent than standard care in subacute and rehabilitation settings (11). Therefore, nutritional support may be a potential therapeutic strategy with better clinical outcomes for patients with postcerebrovascular disorder.

There are a number of possible treatment modalities that may help to maintain or improve the nutritional status of patients with oropharyngeal dysphagia. These include modification of the consistency, temperature, and/or taste of liquids and food.

The choice of PEG for long-term nutritional support in patients with neurological dysphagia compared with that of the nasogastric tube has been proposed as a level A recommendation in ESPEN's guideline of geriatric patients. Tube feeding is not recommended in patients with terminal dementia (evidence level; C) (12). However, the sociocultural realities of our country affect the decisions to be made in this regard. The right management should be constituted via a Dysphagia Unit that includes different disciplines.

In our algorithm, we planned a path according to these opinions to provide the least risk and highest benefit in patients with suspected swallowing disorders. We aimed to prevent the negative results of malnutrition due to dysphagia, to diagnose possible silent aspirations, and to reduce or delay invasive procedures, such as PEG, with swallowing rehabilitation, especially in appropriate patients. In addition, we aimed to increase the quality of life of the patients fed with a nasogastric tube or PEG by providing the transition to oral route by swallowing reha-

bilitation. We were able to achieve success, especially in young patients with trauma, in our clinical practice even with a limited number of patients.

While creating the algorithm, the ESPEN and ASPEN guidelines have been considered to determine the application, and we have attempted to offer functional solutions to the problems that we have encountered in clinical practice (13, 14).

The basic objective of the algorithm is to supply the nutritional requirements of patients with dysphagia by minimal invasive procedures, minimal risk of infection, and minimal complication.

In conclusion, dysphagia is a swallowing disorder that should be treated with a multidisciplinary approach. The algorithm that we use is not a certain application for each patient. However, each center should establish a multidisciplinary treatment algorithm for patients with swallowing disorders. In this regard, the algorithm we offer may be a preliminary study.

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