

# Effectiveness of care for Purée Diet and tube feeding combine test meal in a Regional Hospital

Hsuan-Yun Chang , Yi-Fen Lin, Fan-Chun Hsu, Yu-Lin Yu

## Introduction

Nasogastric tube (NGT) is the primary route for feeding patients with swallowing difficulties, bedridden, and dementia due to its ease of insertion, multiple choices of commercial formulas, and short preparation time. This method has become the primary measure for acute and chronic medical interventions in Taiwan. In Taiwan, as many as 122,631 inpatients over 65 years (17.4%), and 67% of subjects living in long-term care institutions had NGT intubation. Help weaning off the NGT and providing health education and training in inpatients during hospitalization reduces lifelong dependence on tube feeding. Long-term NGT feeding deprives the ability to chew and taste and creates further problems like esophagitis, gastroesophageal reflux, nasal ulceration, and gastrointestinal bleedings. Besides, the change of external appearance could easily lead to social withdrawal behaviors, damages at psychological levels, and poor life quality. In light of this, since 2018, our hospital has established an interdisciplinary team to help patients with dysphagia to wean off the NGT and intake food orally safely.

## Method

We collected the Hospital Information System (HIS) data to screen dietary orders of a purée diet or tube feeding combined experimental meal, with food order records from January 1 to December 31, 2020. Basic information, hospitalization days, transference team care rate, NGT weaning rate, etc., were retrieved for effectiveness analysis.

## Result

A total of 109 patients consisting of 55 males and 41 females were recruited (13 purée diet and 83 tube feeding combined experimental meal). They had a mean age of  $77.2 \pm 14.5$  years, with the youngest being 24 years old and the oldest being 100 years. Most of the patients were at the 81-90 years stratum (34%). The average hospitalization days was  $38.6 \pm 23.6$  days. The average BMI was  $21.3 \pm 3.8$  Kg/m<sup>2</sup>, and 52.6% of the patients laid between 18.5 and 23.9. The average values of albumin, potassium, phosphate, and sodium were  $3.3 \pm 0.5$ g/dL (N=70),  $4 \pm 0.6$  mEq/L (N=96),  $3.3 \pm 0.8$  mg/dL (N=30), and  $137.3 \pm 4.9$  Emq/L (N= 96). The nutrition visit rate was 84.7% and the average visit time was 2.4, and 38.8% of the patients had received swallowing assessment or training by speech-language pathologists. Four of the patients originally who had purée diets progressed to ground or soft diets, while eight patients maintained the original meals. The patients with tube feeding combined experimental meal attempted eating by mouth after tube feeding for an average of  $30.6 \pm 22.2$  days. The rate of NGT removal was 58.3% after modified diet or swallowing training. Among them, 63.2% weaned off after one week of training, and 98% of them recovered to eating by mouth after one month (Fig. 3).

## Conclusions

The American Stroke Association management guidelines recommend a temporary use of NGT for patients with dysphagia after stroke who cannot intake food orally to maintain adequate nutrition; a gastrostomy tube is recommended when the situation is expected to not improve in 14-28 days. Tube feeding prevalence is high in Taiwan, primarily because of the conservative attitude on invasive fistula surgery and the belief of loss of physical strength without food intake among family members, and thus worry about or reject the removal of the nasogastric tube. In the current study, the patients started receiving the experimental meal averagely after 30 days when their physiological conditions were stable. About 85.7% of the patients progressed to a semi-fluid or a soft diet after two weeks of training until discharged. Our study found that 92.3% of the patients receiving purée diet maintained or improved their functions. Several studies found that patients had poorer recovery in swallowing function and difficulty in NGT removal at an older age. Nevertheless, our study demonstrated successful removal of NGT in 31.1% of the elderly patients >85 years old after receiving diet modifications and/or swallow training. The 58.3% removal rate of the NGT after receiving the experimental meal was similar to that reported by Jong HL et al (40-58%). NGT is for short-term enteral access to nutrition provision. The patients should be referred for swallowing assessment and care to enable an early removal of NGT so that they can intake food orally, enjoy the fun of eating, and better life quality.

Table 1. demographics and clinical characteristics of the subjects

Variables	Value
Age (years old)	77.2±14.5
Sex (male : female)	56:41
BMI (kg/m <sup>2</sup> )	21.3±3.8
Length of stay (day )	38.6±23.6



Tube feeding diet+ test meal

purée diet

Fig 1. Types of dysphagia diets in hospital

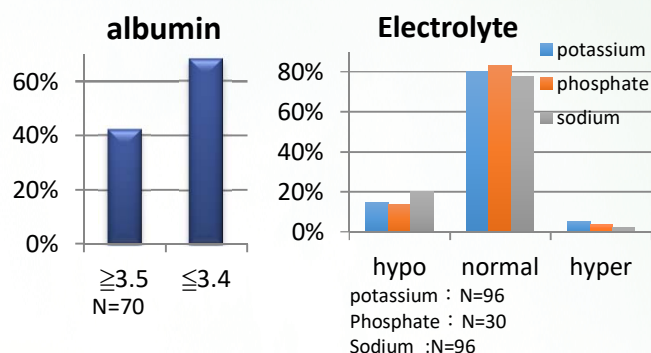


Fig 2. Clinical and biochemical data related to the nutritional status

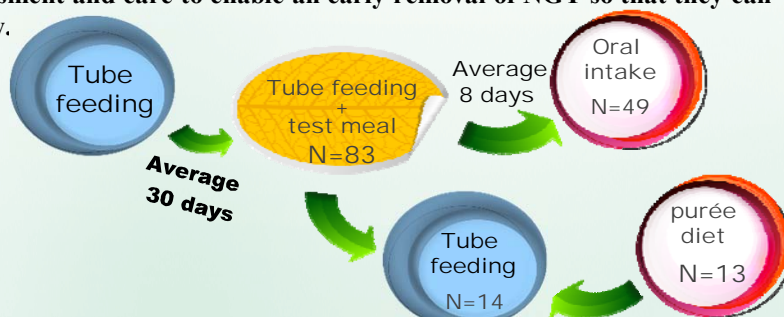


Fig 3 . Progression of hospital diet