



## The prognosis of dysphagia patients over 100 years old



Hiroataka Shoji<sup>a</sup>, Ayako Nakane<sup>a,\*</sup>, Yumiko Omosu<sup>b</sup>, Karin Sawashima<sup>b</sup>,  
Satoshi Teranaka<sup>a</sup>, Yoshiko Umeda<sup>a</sup>, Nobuhiro Inokuchi<sup>a</sup>, Shuhei Takeuchi<sup>a</sup>,  
Yutaka Kamikawatoko<sup>b</sup>, Shunsuke Minakuchi<sup>a</sup>

<sup>a</sup> Gerodontology and Oral Rehabilitation, Department of Gerontology and Gerodontology, Graduate School of Medical and Dental Sciences, Tokyo Medical and Dental University, 1-5-45 Yushima, Bunkyo-ku, Tokyo 113-8549, Japan

<sup>b</sup> Department of Rehabilitation, Isshin General Hospital of Nisshinkai Medical Corporation, 1-18-7 Kitaotsuka, Toshima-ku, Tokyo 170-0004, Japan

### ARTICLE INFO

#### Article history:

Received 29 June 2013

Received in revised form 18 April 2014

Accepted 24 April 2014

Available online 2 May 2014

#### Keywords:

Very elderly

100 Years old

Aging

Dysphagia

Functional Oral Intake Scale

### ABSTRACT

Several reports have recently been published regarding dysphagia in very elderly patients, and centenarian dysphagia patients have become more common in Japan. The aim of this study was to assess the prognosis of dysphagia in very elderly patients. Participants were 24 centenarian dysphagia patients. For each patient, we collected information on age, care level, past medical history, and changes in oral intake according to the Functional Oral Intake Scale (FOIS). Patients were divided into two groups based on the mode of food intake at the time of transfer or discharge: the per oral-only group (the PO-only group, i.e., oral intake alone) and the tube feeding-dependent group (the TF-dependent group, i.e., combination of oral intake and tube feeding, or tube feeding alone). In both groups, the FOIS score decreased significantly from pre-hospitalization to the time of transfer or discharge ( $p = 0.006$  for both). The FOIS score at initial assessment was higher in the PO-only group with the TF-dependent group ( $p = 0.0004$ ). Furthermore, the frequency of a FOIS score of 4 at initial assessment was significantly higher in the PO-only group, and the frequency of a FOIS score of 1 was significantly higher in the TF-dependent group ( $p = 0.0006$ ). These findings collectively suggest that oral intake can be recovered if the FOIS score is  $\geq 4$  at initial assessment, is difficult if the score is 1, and may be possible with a FOIS score of 2.

© 2014 Elsevier Ireland Ltd. All rights reserved.

## 1. Introduction

During the natural course of aging, people become more vulnerable to various illnesses and disorders, including dysphagia. In the elderly, dysphagia is the major pathophysiologic mechanism leading to aspiration pneumonia (Marik & Kaplan, 2003). In Japan, pneumonia ranks third among general causes of death (Ministry of Health, Labour, and Welfare, 2012), and is the most common cause of death in elderly males aged  $\geq 90$  years (The Committee for the JRS Guidelines in Management of Respiratory Infections, 2007, chap. 3). Aspiration pneumonia accounts for at least 80% of pneumonia cases in elderly people aged  $\geq 70$  years (Teramoto et al., 2008). Once infected, elderly people require considerably more time to return to their baseline state of mobility than young adults. This is particularly so among frail elderly people, and recovery may take several months for this population (Marrie, 2000). Indeed, even minor injuries can markedly impair activities of daily living

(ADL) and lead to various subtle, perhaps latent impairments to surface or become severe, such as decubitus ulcers, severe dry mouth, and deterioration of dementia. Disuse syndrome due to immobility is also an emerging issue, as is muscular atrophy due to inactivity from hospitalization. When reaching the age of 100, people suffer from several chronic conditions, which strongly suggests that healthy centenarians do not exist, or at least are extremely rare (Andersen-Ranberg, Schroll, & Jeune, 2001). In other words, centenarians are people who suffer from decreased functional reserve (Darviri et al., 2008). This phenomenon of atrophy from disuse is likely to be similar for swallowing and respiratory function, highlighting the importance of swallowing rehabilitation for very elderly people prone to aspiration.

At present, swallowing rehabilitation is only occasionally performed for centenarians (Freeman, Kurosawa, Ebihara, & Kohzuki, 2010). In very elderly patients, perhaps due to their age, oral intake is often forgone without adequate efforts to rehabilitate swallowing function. Yet, substantial individual variation exists in physical function among elderly patients, and thus it is possible that even very elderly patients may be capable of oral intake with adequate swallowing rehabilitation. Given the

\* Corresponding author. Tel.: +81 3 5803 5562; fax: +81 3 5803 5562.  
E-mail address: [fujigerd@tmd.ac.jp](mailto:fujigerd@tmd.ac.jp) (A. Nakane).

prolongation of life expectancy, centenarians are becoming commonplace in society (Willcox, Willcox, & Poon, 2010). This inevitably implies that the number of centenarian patients with dysphagia will rise globally in the coming years, and underscores the need for specific measures to improve swallowing function in this population. To this end, an important consideration is the implementation of an appropriate system at the intervention stage of swallowing rehabilitation. Currently, a number of reports exist on dysphagia in elderly patients (Sheth & Diner, 1998; Tibbling & Gustafsson, 1991). However the age range of patients is wide in many studies and few have targeted very elderly patients. Importantly, no study has been performed in centenarian patients.

To evaluate the prognosis of dysphagia in very elderly patients, we divided centenarian dysphagia patients into two groups after swallowing rehabilitation based on whether they were able to feed orally or were dependent on tube feeding. We also assessed factors affecting swallowing function from pre-hospitalization to the time of transfer or discharge.

## 2. Materials and methods

### 2.1. Participants and study design

We conducted a retrospective cohort study of 24 centenarian patients with dysphagia (5 males, 19 females; mean age,  $103.3 \pm 2.8$  years; age range, 100–109 years) hospitalized between January 2007 and April 2012. Table 1 summarizes their reasons for hospitalization. All patients were introduced to rehabilitation department after admission to internal medicine and orthopedics due to dysphagia.

After the initial assessment, all patients received rehabilitation therapy. The rehabilitation program ranged from direct swallowing therapy to indirect therapy (Neumann, Bartolome, Buchholz, & Prosiel, 1995). Direct rehabilitative exercises included diet adjustments and were supervised by speech language pathologist, nurse, and dental hygienist. Indirect therapy involved oral care, electrical stimulation, and physical exercises addressing range of movement, joint mobility, and posture. Oral care was provided by dental hygienist and physical exercises by physical therapists. Other swallowing rehabilitation methods, such as supraglottic swallowing and Mendelsohn maneuver (Ding, Larson, Logemann, & Rademaker, 2002), were not performed.

Patients were divided into two groups based on the mode of food intake at the time of transfer or discharge: the per oral-only group (the PO-only group, i.e., oral intake alone without tube feeding) and the tube feeding-dependent group (the TF-dependent group, i.e., combination of oral intake and tube feeding or tube feeding alone). Each survey item was compared between the two groups.

This study was approved by the Ethics Committee of the Tokyo Medical and Dental University Faculty of Dentistry (approval number 875) and the Ethics Committee of the Isshin General Hospital of Nisshinkai Medical Corporation.

### 2.2. Data collection

Information regarding past medical history, age, care level (Tamiya et al., 2002), number of days to initial assessment, length

of hospitalization and swallowing rehabilitation, form of food intake before hospitalization, at the initial assessment, and at the time of transfer or discharge, were obtained from medical records.

During the initial assessment, videofluoroscopic (VF) and/or videoendoscopic (VE) swallowing examinations were performed in almost all patients. Patients who could not undergo the examinations underwent one or more of the following tests: repetitive saliva swallowing test (RSST; Oguchi et al., 2000), cough test (CT; Wakasugi et al., 2008), water test (WT; Tohara, Saitoh, Mays, Kuhlemeier, & Palmer, 2003), and food test (FT; Tohara et al., 2003). When the general condition of the patients was stable, some tests were carried out. VF was performed in seven patients (29.2%), VE in 11 (45.8%), RSST in 12 (50%), CT in 14 (58.3%), WT in eight (33.3%), and FT in seven (29.2%).

FOIS (Crary, Mann, & Groher, 2005) (FOIS) score was used to assess swallowing function. FOIS consists of 7 rank-ordered scales to evaluate changes in the swallowing function of stroke patients. Levels 1 through 3 relate to varying degrees of nonoral feeding; levels 4 through 7 relate to varying degrees of oral feeding without nonoral supplementation. Its validity and reliability have been established (Crary et al., 2005). In fact, Crary et al. suggest that other assessment scales (e.g., Dysphagia Outcome and Severity Scale (O'Neil, Purdy, Falk, & Gallo, 1999) and Functional Outcome Swallowing Scale for Staging Oropharyngeal Dysphagia; Salassa, 1999) are less valid or reliable. Moreover FOIS was assessed retrospectively on the basis a chart review (Crary et al., 2005; Hansen et al., 2008). FIOS has also been used in populations other than stroke patients, such as patients with head and neck cancer (Crary, Carnaby (Mann), Groher, & Helseth, 2004). A partially modified version has been used in patients with Zenker's diverticulum (Adam, Paskhover, & Sasaki, 2013).

FOIS score before hospitalization was estimated based on the form of food ingested. Furthermore, FOIS scores at initial assessment and at the time of transfer or discharge were estimated based on the form of food intake determined by results of several tests and examinations and clinical symptoms.

We adopted this scale given its adequate reliability and validity to assess changes in swallowing function and applicability across various diseases.

### 2.3. Statistical analysis

The Wilcoxon signed-rank test was used for within-group analyses and the Mann-Whitney *U* and Fisher's exact tests were used for analyses between the PO-only and TF-dependent groups. SPSS11.0J for Windows (SPSS Inc, Chicago, IL, USA) was used for statistical analysis.  $P < 0.05$  was considered statistically significant.

## 3. Results

### 3.1. Characteristics of the PO-only group

#### 3.1.1. Changes in FOIS score (Fig. 1)

The pre-hospitalization FOIS score was 7 for eight patients, 5 for one patient, and 4 for six patients. At initial assessment, the FOIS score was 5 for one patient, 4 for eight patients, and 2 for six patients, and at the time of transfer or discharge, 5 for four patients and 4 for 11 patients. The pre-hospitalization FOIS score significantly differed from the FOIS score at the time of transfer or discharge ( $p = 0.006$ ; Wilcoxon signed-rank test). The FOIS score at the time of transfer or discharge significantly differed from the FOIS score at initial assessment ( $p = 0.016$ ; Wilcoxon signed-rank test). The FOIS score decreased for all nine patients who had pre-hospitalization FOIS scores of  $\geq 5$ , and did not return

**Table 1**  
Reasons for hospitalization.

Respiratory	11 patients (pneumonia, 10; acute bronchitis, 1)
Orthopedic	4 patients (femoral neck fracture, 3; femoral fracture, 1)
Gastrointestinal	4 patients (acute gastroenteritis, 2; gastric ulcer, 1; cholelithiasis, 1)
Cerebrovascular	2 patients (cerebral infarction, 1; hydrocephalus, 1)
Circulatory	2 patients (heart failure, 2)
Endocrine	1 patient (dehydration, 1)

Download English Version:

<https://daneshyari.com/en/article/1902959>

Download Persian Version:

<https://daneshyari.com/article/1902959>

[Daneshyari.com](https://daneshyari.com)