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ORIGINAL ARTICLE

Impact of Knowledge and Behavior of Medical Personnel Towards Speech Therapy for Tracheostomized Patients

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Background: Tracheostomized patients suffer from communication difficulty, physical pain, swallowing difficulty, and decreased quality of life. In this study, we investigated the current status of communication and swallowing difficulties in tracheostomized patients in Taiwan, and the knowledge of medical personnel about tracheostomized patients and the perceived benefits of referring them to speech therapy.

Methods: We analyzed both the national data from The Collaboration Center of Health Information Application, and medical insurance data of a medical center in Taipei. We also administered a questionnaire survey to 80 medical personnel before and after an education program was given for patients and medical personnel.

Results: Treatment referral rates of inpatients with tracheostomy for speech therapy were found to be at 4.87% and 10%, from national and medical center data, respectively, and only a few patients received both communication and swallowing training. Over 50% of the medical personnel never referred any tracheostomized inpatients for speech therapy. The rate of referral was not significantly affected by experience and knowledge of medical personnel of tracheostomy.

Conclusion: Fundamental education about the availability of speech therapy and speech-language therapists for medical personnel would be the best way to help tracheostomized patients obtain entitled proper speech therapy in Taiwan.

1. Introduction

Tracheostomy is a way for cleansing the secretions in the airways, or for improving their respiratory function. However, tracheostomy causes physical pain, limits effective communication and swallowing ability, makes the patients barely enjoy food or conversation, and affects quality of life.[1–4] Tracheostomy adversely affects adult quality of life, and seriously affects the development of language and expression in growing children. It also influences patients' voice quality and makes intelligibility poorer in noisy environments.[5,6] Tracheostomized patients suffer from communication or swallowing difficulties that affect their daily life. Those swallowing and communication difficulties can be improved through treatment by speech-language therapists. Positive rehabilitation and better quality of life for tracheostomized patients can be obtained through speech therapy.

Over the past decade, many papers have described the importance of multidisciplinary professional teams for management of tracheostomized patients. Researchers suggest that early involvement of speech-language therapists is important for communication and swallowing management of tracheostomized patients.[7–9] If patients have compliance with medical management to enhance the treatment effect, they are more satisfied with their life because of regaining communication and swallowing ability.[10]

Speech-language therapists provide advice for the decannulation decision. They also assess patients' respiratory protection, vocal ability, use of speaking valve or augmentative and alternative communication, and training ability to express and eat. Treated tracheostomized patients can improve their ability to smell and swallow, decrease the number of suctions, reduce the number of tracheostomy intubation days and infection rate, as well as improve quality of life.[7,11] These are all included in the job descriptions of speech-language therapists in some Western countries.[8] In other words, through professional advice,

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tracheostomized patients regain their communication and swallowing ability, and improved quality of life.[2–4,12,13] Tracheostomized patients with swallowing difficulty should be evaluated and treated by speech-language therapists.[10] All adult and child tracheostomized patients or any person with communication or swallowing difficulties, should be referred to speech-language therapists once their medical and pulmonary status becomes stable.[8,14] Moreover, communication and swallowing which are both important for tracheostomized patients, should be assessed and treated.[15] However, not all tracheostomized patients have been referred for evaluation or training by speech-language therapists. Low speech therapy rates have been noted in previous studies.[8,16,17]

Some studies have reported that tracheostomized patients have been referred to speech-language therapists for assessment and treatment such as cuff deflation on average 14 days after tracheostomy intubation. Over 70% of tracheostomized patient have directly been evaluated and treated by a speech-language therapist.[8,18]

To understand the referral status of speech therapy in tracheostomized patients in Taiwan, we intended (1) to explore the answers to questionnaires and the level of speech therapy for patients with tracheostomy, and (2) to establish the relationship between rates of referred tracheostomized patients for speech therapy and knowledge and behavior of medical personnel.

2. Methods

2.1. Data collection

We extracted the national data retrospectively from The Collaboration Center of Health Information Application (CCHIA), which is a health insurance system covering 99.5% of the population in Taiwan. We analyzed service claim data of tracheostomized inpatients that had been submitted to obtain reimbursement from the National Health Insurance in Taiwan from January 1, 2010 to December 31, 2010. We also collected and compared medical insurance data of inpatients with tracheostomy from a medical center in Taipei from 2009 to 2013 and compared the data from September to January of the following years in each year of those five years. Data for speech therapy had two different service types: evaluation and training. Each type was separated into both communication and swallowing items. Thus, we analyzed five categories: communication evaluation, swallow evaluation, communication training only, swallowing training only, as well as both communication and swallow training. This study was focused on studying the training types of those tracheostomized patients who received speech therapy.

2.2. Questionnaire survey

A questionnaire survey was administered to 80 employees of the above medical center from January 1, 2014 to March 31, 2014. Excluded in this study were all interns, clerks, and student nurses. Study participants who gave informed consent and completed the questionnaire received a gift valued at NT$100 (about US$3.50).

The whole study protocol (both data analysis and questionnaire) was approved by the Joint Institutionalized Review Board of Taipei Medical University, Taipei, Taiwan. Those medical center employees who completed the questionnaire survey signed the informed consent before participating in the survey.

2.3. Education program

Based on the need to educate medical personnel who are unfamiliar with the process and the method about referring inpatients with tracheostomy for speech therapy[19] and speech language therapists' responsibility to educate patients, caregivers, and medical personnel,[14] we conducted an education program to stress the need and importance of speech therapy at the medical center.

2.4. Statistical analysis

We presented the data with descriptive statistics. The differences between groups were tested using Student t test,χ^2 test, and Mann–Whitney U test for continuous and categorical variables. We used Statistical Analytic System (SAS) for Windows version 9.3 (SAS Institute Inc., Cary, NC, USA) and SPSS for Windows version 15.0 (SPSS Inc., Chicago, Illinois, USA) to calculate all study data. The differences between the groups were considered significant if p-values were smaller than 0.05.

3. Results

Table 1 lists the distribution of inpatients with tracheostomy and the speech therapy they had in Taiwan in 2010. Table 2 shows the distribution of inpatients with tracheostomy by region and hospital level in Taiwan in 2010. Table 3 presents speech therapy status of tracheostomized inpatients by the top 10 medical divisions in Taiwan and at a medical center. Table 4 describes the status of speech therapy in tracheostomized inpatients at a medical center in Taipei from 2009 to 2013. Table 4 shows the status of speech therapy in tracheostomized inpatients at a medical center in Taipei from 2009 to 2013. Table 5 indicates the status of speech therapy in tracheostomized inpatients at a medical center in Taipei from 2009 to 2013. Table 6 reveals changes in medical personnel by groups prior to and after the education program at a medical center in Taipei.

4. Discussion

Table 4 shows that the number of tracheostomized inpatients who received speech therapy (from 25 to 12) and referral rate (from 8.4 to 5.7) were decreased, and that numbers of tracheostomized inpatients (from 298 to 209) and training frequency had a declining trend from 2009 to 2013 at the medical center. The reason for the overall reduced number of tracheostomized inpatients who received speech therapy was possibly the decreased number of inpatients. Increases in other types of rehabilitation patients (e.g., head and neck cancer, voice disorder, or dementia) when speech-language therapist manpower was kept at the same level may also have led to decreased frequencies in training, as reflected in the service claims.

Our findings showed that the main training that tracheostomized inpatients received was communication training only (52.4%, 657/1253) in Taiwan (Table 1), swallowing training only (63.6%, 82/29) in the medical center (Table 4), and that 25%–33.3% of tracheostomized inpatients who received speech therapy received both communication and swallow training (Tables 1 and 4). However, speech-language therapists should manage both communication and swallowing problems in tracheostomized patients.[8] The differences are possibly caused by fewer speech-language therapists in Taiwan compared with Western countries, low monetary values in insurance reimbursements, or poor patient conditions in Taiwan. To clarify these unanswered questions, we suggest that future studies are needed.

Another findings from the study indicated that both referral rates of the medical center and the whole island were 10% (Table 4) and 4.87% (Table 1), respectively. The percentage of tracheostomized inpatients who received therapy and average training number were decreased as the age of the population increased, from the national data. Our findings showed that the referral rate was below