Rehabilitative management of oropharyngeal dysphagia in acute care settings:data from a large Italian Teaching Hospital

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Introduction

Oropharyngeal dysphagia has a high morbidity, mortality and cost; the consequences of oropharyngeal dysphagia can be severe: dehydration, malnutrition, weight loss, aspiration, choking, pneumonia and death. Even though both surgical and pharmacological approaches may play a significant role in dysphagia management, swallowing rehabilitation is widely practised in a large percentage of patients. Swallowing rehabilitation can be successful in returning a significant number of dysphagic patients to oral intake. Current strategies of swallowing therapy include dietary modification, swallowing manoeuvres, postural adjustments and facilitatory techniques. In the cases where surgical and pharmacological therapy are not applicable, the only alternative to swallowing rehabilitation is either enteral or parenteral nutrition, the costs of which can be enormous.

Even though dysphagia teams are a common institutional strategy to facilitate communication and cooperation among contributing clinicians with an otherwise diverse focus, phoniatricians and speech and language pathologists (SLPs) are among the two most involved professions in the rehabilitative management of dysphagia. The SLP, together with the phoniatrican, in Europe at least, is typically responsible for identifying, evaluating and treating people experiencing problems with the ingesting and swallowing of food. In fact, the assessment and management of dysphagia has been of growing interest to SLPs, and about 50% of practicing SLPs carry out some dysphagia assessment or intervention; in hospital settings this proportion increases to 92%.

A high incidence of oropharyngeal dysphagia in acute care settings has been reported: 12-13% of the patients showed signs of dysphagia and over one-third of the hospital population had a disorder affecting the ability to be nourished orally. Dysphagia in adults is commonly associated with different diseases such as stroke, brainstem and cortical tumours, traumatic brain injury, neuro-degenerative diseases, cancers of the head and neck; in most of the cases, medical assessment, therapy and management start in acute care hospitals. While a significant number of studies have analysed the role of screening, assessment and management of stroke patients with dysphagia in acute care hospitals, to our knowledge no data have been reported on the rehabilitative management of oropharyngeal dysphagia by SLPs and phoniatricians in the acute care settings population. We hereby report the experience of oropharyngeal dysphagia rehabilitative management in a large Italian teaching hospital.

Patients and method

Settings

The S. Giovanni Battista Hospital is one of the largest Italian acute care hospitals for adults, with over 30 different in-patient departments, including Neurology, Neurosurgery, Intensive Care Unit (ICU), General Medicine, Head & Neck Surgery, Thoracic Surgery, Geriatrics and Radiotherapy. In-patients communication and dysphagia rehabilitation needs are fulfilled entirely by the Department of Audiology and Phoniatrics, where both phoniatricians and speech and language pathologists work. Whenever a patient in any Department of the Hospital experiences a swallowing impairment requiring a rehabilitation program, he/she is referred to the Audiology and Phoniatrics Department.

Patients characteristics

The characteristics of in-patients with oropharyngeal dysphagia referred to the Audiology and Phoniatric Department at the S. Giovanni Battista Hospital of Turin during the year 2004 were studied prospectively. Anagraphical data (name, surname, sex and age) were recorded for each

patient; the date of the referral and the interruption date of the SRP, the Department referring the patient, the disease causing dysphagia, the presence of a communication disorder (aphasia, dysarthria, dysphonia) were also registered. The presence/absence of a tracheostomy tube as well as presence/absence of aspiration pneumonia were also recorded.

Swallowing impairment and rehabilitation

The first consultation of an in-patient referred for swallowing rehabilitation is made by a phoniatrician; he/she analyzes the medical documentation, reports the disease that required the hospitalization and examines the patient. A bed-side examination of swallowing is then performed by the SLP. When necessary a fiberoptic endoscopic evaluation of swallowing (FEES) according to Bastian's description is performed by the phoniatrician. Referred patients undergo a modified barium swallow (MBS) study following Logeman's procedure only if the available data on the anatomy and physiology of the patient's swallowing are not enough to establish a rehabilitation program. On the basis of the clinical/instrumental assessment a score for swallowing ability is assigned utilizing the American Speech-Language-Hearing Association (ASHA) National Outcome Measurement System (NOMS) swallowing level scale, developed by the National Center for Treatment Effectiveness in Communication Disorders. The ASHA NOMS is a multidimensional tool designed to measure both the supervision level required and diet level by assigning a single number between 1 (individual's ability to swallow anything safely by mouth) and 7 (individual's ability to eat independently is not limited by swallow function). The best way to be nourished is established for each patient and, if applicable, a full swallowing rehabilitation program (SRP) based on head postures, swallowing manoeuvres and sensory-motor stimulation is designed by the phoniatricians together with the SPL; the SRP is fulfilled by the SLP, while the outcome is analyzed by both the phoniatrician and the SLP. Concerning swallowing impairment. its assessment, the rehabilitation program and its outcome the following parameters were considered: the instrumental examination requested (FEES, MBS, none), the swallowing level at the beginning and at the end of the SRP according to the ASHA NOMS swallowing scale, the number of rehabilitation sessions provided, the cause leading to end the SRP as in-patient (death, rehabilitation program completed, discharge or transferral from the referring Department).

Results

Patient characteristics

35,590 in-patients were admitted to San Giovanni Battista Hospital During the year 2004; two hundred and twenty-two in-patients (95 females and 127 males) were referred to the Audiology and Phoniatrics Department for the assessment of oropharyngeal dysphagia and establishment of a SRP. The mean age was 65.6 years of life (range 14-92); the decades with the largest number of in-patients with dysphagia were 51-60 (52 patients), 61-70 (66 patients) and 71-80 (39 patients). The mean number of patients referred per month was 19, ranging from 12 in March to 25 in October.

The following departments referred the largest number of patients for dysphagia: General medicine (26.1 %), Neurosurgery (17.1 %), Neurology (16.7 %), ICU (14 %), Geriatrics (9 %) and Head and Neck Surgery (8.5 %). Mean ages for each department are also analyzed: the departments with the lower mean age were ICU, Neurology and Head and Neck Surgery; in the remaining departments the mean age was of about 70 years or more. In most of the departments the mean swallowing impairment was between 2.5 and 3 at ASHA NOMS when the patients were referred; the mean values rose to a mean value between 3.7 and 4.5 when the SRP ended. ICU, Neurosurgery and Head and Neck Surgery departments showed lower mean values at the ASHA NOMS when the patients were first assessed; at the end of the SRP only the ICU showed low values of swallowing impairment.

Neurogenic dysphagia represent the vast majority of the in-patient population with oropharyngeal dysphagia, since only 44 patients out of the 222 had a structural modification influencing bolus transit or other causes (22 patients had Head and Neck resections, 8 underwent cardiac surgery, 6 cervical spine surgery, 4 pulmonary surgery and 4 had

oesophageal cancer). The mean swallowing impairment severity at ASHA NOMS at the beginning and at the end of the SRP for each disease has also been analyzed. For most of the diseases the mean value before the SRP was between 2.3 and 3.0; low values were found in patients who underwent cervical or cerebral surgery, as well as in those who suffered from traumatic brain injury and cerebral metastasis. After the SRP the mean value at ASHA NOMS show a clear increase for most of the diseases.

In 110 patients a communication disorder was also present: dysarthria (27 patients), dysphonia (24 patients), aphasia (59 patients). A tracheostomy tube was present in 56 in-patients referred for dysphagia; 18 were in the Neurosurgery department, 17 in the ICU, 14 in the Head and Neck Surgery Department, 8 in the General Medicine Department. Aspiration pneumonia was recorded in 15 patients before their referral to the Audiology and Phoniatrics Department; in 12 of them the oro-pharyngeal dysphagia was severe, with a score between 1 and 2 at the ASHA NOMS swallowing scale. No case of aspiration pneumonia was recorded during the swallowing rehabilitation program.

Swallowing impairment and rehabilitation

An instrumental assessment was required in 94 patients: a FEES examination was performed in 49 cases, while a MBS study was necessary for 45 patients. Forty of these 94 patients had a severe swallowing impairment, with a score between 1 and 2 at the ASHA NOMS swallowing scale. Only six patients of those requiring an instrumental assessment had a score of 6, while the remaining forty-eight had a score between 3 and 5 at the ASHA NOMS swallowing scale. Even if less than the half of the patients underwent an instrumental assessment, it has to be considered that in the fifty-six cases with a tracheostomy tube a blue dye test was performed, allowing preliminary decision making without the need of further instrumental investigations.

A general improvement is clearly visible; the number of patients in a nil-by-mouth regimen dropped from 127 to 57. The number of patients able to eat independently by mouth increased from 5 to 41.

The in-patients referred to the Audiology and Phoniatrics Department for oro-pharyngeal dysphagia remained in the hospital for a period ranging between 1 to 81 days (mean 13.8 ± 88) from the date of the referral to the end of rehabilitation. The mean number of swallowing rehabilitation sessions provided was 5.9 ± 88, with a range between 1 and 20.

In the vast majority of the cases (49.5%) the transferral from the referring department in a subacute setting did not permit for the ending of the rehabilitation program; nonetheless in one-fourth of the patients the program was completed in the hospital.

Discussion

The data on the management of oropharyngeal dysphagia by SLPs and phoniatricians in a large Italian teaching hospital have been reported. While there is general agreement that rehabilitation should be started as soon as possible, little data on swallowing rehabilitation in the acute phase exist; to our knowledge this is the first description of dysphagia management in acute care settings, not restricted to stroke patients.

Though the percentage of in-patients referred for a SRP was rather small (0.6% of the hospital population), the absolute number is significant (n. = 222) with more than four new cases a week. The only previous paper on dysphagia in acute care settings, reported a significantly larger number of swallowing impaired in-patients. However, some differences between the two studies exist; first, in the Groher and Bukatman paper several services were not surveyed (psychiatry, pediatrics, neonatology, obstetrics and inpatients substance abuse). Second, in their study the patients were considered dysphagic on the basis of the history and of the symptoms, while no specific investigation was performed; third, the prevalence study surveyed all the patients with a swallowing impairment, while in the present study only those who were eligible for a SRP were considered.

The in-patients referred to the Department of Audiology and Phoniatrics for a swallowing impairment were in about one-fifth of the cases aged over 70, suggesting that a presbyphagic

component can be suspected. In fact, it is known that age significantly changes swallowing biomechanics and neurophysiology; the role played by the single disease and by aging in each elderly in-patient was not investigated in the study.

The number of referrals showed only minor variations during the year, suggesting that the number of in-patients with oropharyngeal dysphagia in a large acute-care hospital remains stable. The in-patients with oropharyngeal dysphagia came from different departments and mainly had a neurologic disease; yet only 36% of the study population had suffered a stroke. Therefore, it appears that acute-care hospitals should consider the need for a team to assess, manage and rehabilitate oro-pharyngeal dysphagia of different origins throughout the year. While a strong emphasis has been placed on the early identification and best management of dysphagia in acute stroke patients, as witnessed by the production of different guidelines on the topic, the situation differs significantly for other conditions, which also require the skills of a SLP and a phoniatrician experienced in swallowing rehabilitation. Data on dysphagia management of stroke patients in acute care-settings, has shown that the implementation of dysphagia programs is accompanied by substantial reductions in pneumonia rates; even if no data are available at the moment, a similar approach for the in-patients with dysphagia of different origin, might reduce the number of dysphagia complications in an acute phase.

The in-patients showed a moderate to severe swallowing impairment at the time of referral, while on average they were able to eat by mouth at the end of the SRP. The only exception was to be found with the patients of the ICU, who still showed a moderate/severe dysphagia when they were discharged; this datum probably reflects the fact that, when patients leave the ICU, they are usually transferred to another department before leaving the hospital or are admitted to rehabilitation centers specifically dedicated to these kind of patients. Therefore, it seems that swallowing rehabilitation in the acute phase, sustains patients in achieving autonomous feeding, preventing respiratory and nutritional complications.

One-fourth of the patients had a trachestomy tube, while another 25% had associated communication disorders. Aphasia, dysarthria and dysphonia may significantly impact on dysphagia management; the clinical skills of SLP, allow them to overcome in the best possible way the difficulties of the different communication disorders. At the same time the management of the trachestomy tube is requested by nursing personnel; both phoniatricians and SLP assist nurses and care-givers in mastering this skill.

The number of swallowing rehabilitation sessions per patients was rather small, but in about one-forth of them the SRP was completed. It thus appears that swallowing rehabilitation should be started early not only because the earlier the better, but also because in a significant number of cases no other swallowing treatment is needed at home.

In conclusion, dysphagia rehabilitation in an acute care setting is requested by the medical doctors of different departments because of its high prevalence; skilled SLPs and phoniatricians, together with radiologists, nutritionists and gastroenterologists are needed for an early assessment and best management.