A eficácia da reabilitação em disfagia orofaríngea**

Efficacy of rehabilitation in oropharyngeal dysphagia

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Abstract

Background: efficacy of rehabilitation in oropharyngeal dysphagia. In our country the practice of speech-language pathology in oropharyngeal dysphagia has increased significantly and, at this moment, deserves attention since practice needs to be based on scientific evidence. Therapeutic techniques and the outcome of rehabilitation in oropharyngeal dysphagia have been studied since the 70s, reaching its high point during the 80s and 90s. Few studies have investigated the efficacy of therapy in the rehabilitation of oropharyngeal dysphagia, the vast majority have tried to prove the effects of therapy on the dynamics of swallowing. In Brazil, the studies about oropharyngeal dysphagia have, in great part, investigated assessment procedures, and only a few have worried about rehabilitation. Aim: to present a critical analysis about the efficacy of rehabilitation in oropharyngeal dysphagia. Conclusion: this review of the literature indicates that non-randomized studies have compromised the results, once the casuistic of the researches are very heterogeneous - they include neurogenic and mechanical oropharyngeal dyshagia caused by different etiologies. Besides that, therapeutic programs which are used are not sufficiently described, compromising the reproduction of the methodology by other researchers. These results suggest the need for more randomized studies, which can be initially developed as case studies in order to exclude the control variables of therapy efficacy. Another suggestion is, as proposed by present researches, to use scales that can measure the impact of swallowing training in the nutritional and pulmonary condition of dysphagic patients. An important research area, related to the control of therapeutic efficacy and efficiency, are the studies that aim to establish the decrease in hospital and home care costs as a consequence of speech-language intervention with patients with oropharyngeal dyspahgia.

Key Words: Oropharyngeal Dysphagia; Outcome; Rehabilitation; Swallow Maneuvers.

Resumo

Tema: eficácia da reabilitação em disfagia orofaríngea. A atuação fonoaudiológica com disfagia orofaríngea em nosso País alcançou proporções significativas e merece neste momento atenção para que esta atuação esteja baseada em evidências científicas. As técnicas terapêuticas e a eficácia da reabilitação em disfagia orofaríngea têm sido estudadas desde a década de 70, alcançando seu ápice na década de 80 e 90. Poucos estudos têm relatado a eficácia da reabilitação em disfagia orofaríngea, sendo mais freqüente aqueles que têm se preocupado em provar os efeitos da técnica terapêutica na dinâmica da deglutição. No Brasil, as pesquisas em disfagia orofaríngea têm valorizado os procedimentos de avaliação, sendo poucos os trabalhos que tratam da reabilitação. Objetivo: apresentar uma análise crítica sobre a eficácia da reabilitação em disfagia orofaríngea. Conclusão: este artigo de revisão aponta que estudos não randomizados têm comprometido os resultados, uma vez que a casuística das pesquisas têm utilizado amostras muito heterogêneas, que incluem disfagias orofaríngeas mecânicas e neurogênicas ocasionadas por distintas etiologias. Além disto, os programas terapêuticos empregados são pouco descritivos comprometendo a reprodução por parte de outros pesquisadores. Tais achados sugerem a necessidade de estudos mais randomizados, talvez inicialmente por meio de estudos de casos que possam excluir as variáveis do controle da eficácia terapêutica. Outra sugestão seria empregar, assim como as pesquisas atuais têm proposto, escalas que possam medir o impacto do treinamento de deglutição nas condições nutricionais e pulmonares do indivíduo disfágico. Uma importante área da pesquisa, relacionada ao controle da eficiência e eficácia terapêutica, está nos estudos que objetivam estabelecer o grau de redução de custos hospitalares e em empresas de home care, mediante a atuação do fonoaudiólogo com a disfagia orofaríngea.

Palavras-Chave: Disfagia Orofaríngea; Eficácia; Reabilitação; Técnicas Terapêuticas.

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Introduction

The rehabilitation practice faces questionings about efficiency and efficacy of procedures that are used in such practice. As in this area intervention does not aim to reach normality, it is natural that patients and families do not understand, initially, the real goals of the process: the improvement of the individual's quality of life by maximizing the functional or compensatory potential (Karhilas et al, 1992). Throughout its evolution as a Science tool, rehabilitation has discussed and improved methods that control its efficacy. This is also true for the rehabilitation of oropharyngeal dysphagias.

To better understand the real goals of the rehabilitation process in oropharyngeal dysphagia, and consequently to know what should be considered efficacious, it is essential to differentiate the following concepts: rehabilitation, treatment, efficiency and efficacy (Silva, 1998a; Silva, 1998b; Silva, 2000).

Rehabilitating dysphagia means working towards a swallowing without risks of complication. According to DePippo et al (1994) the aim of rehabilitation in oropharyngeal dysphagia is to stabilize the nutritional aspect and to eliminate laryngotracheal aspiration risks and consequent associated complications. On the other hand, when we propose treatment, according to the Portuguese Language Dictionary, we are aiming the "cure". The transposition of this generic concept to the practice with oropharyngeal dysphagia makes patients and family want that rehabilitation achieves normal swallowing.

The use of the concept of efficiency in oropharyngeal dysphagia should be understood as the capacity of a therapeutic procedure to produce benefic effects in swallowing dynamics (Lazzarus et al, 1993a; Lazzarus et al, 1993b). Efficacy, however, is related to improvements in the general status of the individual independently of the disorder durability, as long as procedures assure safe oral intake, maintenance of nutritional condition and stabilization of pulmonary problems (Langmore, 1994; Langmore, 1995; Silva, 1999; Prosiegel et al, 2005).

Nowadays, researches on oropharyngeal dysphagia rehabilitation are divided in two different blocks: most of the studies try to prove the efficiency of a specific therapeutic procedure and others discuss criteria for the control of rehabilitation efficacy. Therefore, this study aims to present a critical analysis about the efficacy of rehabilitation in oropharyngeal dysphagia.

An extent bibliographic research was performed in different databases, such as Medline, Cochrane Library, Scielo Brazil, Chile and Spain and Lilacs. This research used the following descriptors: dysphagia, oropharyngeal dysphagia, rehabilitation and swallowing therapy. When associated, in Medline these descriptors generate more than 700 articles, and the great majority is not specifically about speech-language therapy. Cochrane Library has 3 important specific review articles about efficacy of speech-language therapy for dysphagia in encephalic vascular disease, Parkinson and progressive muscular diseases. In Scielo Brazil, Chile and Spain, respectively, 75, 5 and 10 articles about the subject were found. Of those, 3 in Brazil and 2 in Spain were about rehabilitation researches. In Lilacs, although 400 articles appears when using the descriptor dysphagia, associating dysphagia with oropharyngeal they are limited to 8 of which 1 is about rehabilitation efficacy. In summary, researches about oropharyngeal dysphagia focus the evaluation, and only from the 90s rehabilitation efficiency, and more recently efficacy, have been discussed.

Literature Review

Efficacy may be confirmed when a patient feeds efficiently via oral or when he gains weight. Authors define as an efficacy criterion for oropharyngeal dysphagia rehabilitation, the reduction in the frequency of aspirative pneumonia. Kasprisin et al (1989) referred that efficacy criteria used in dysphagia rehabilitation are not yet satisfactory delimited. Bartolome et al (1993) reported swallowing therapy results in 28 patients with oropharyngeal dysphagia after neurological disorders. Patients were monitored by cineradiography before, during and after therapy. Rehabilitation efficacy was defined by the progress in the type of food to be swallowed without risks. They found that 19% of patients with cricopharyngeal dysfunction improved with swallowing therapy; 65% of them by objective criteria and 25%, by subjective criteria. They concluded that the dysfunction in neurological patients with cricopharyngeal dysfunction, may be treated with swallowing therapy and that surgical procedures should be secondary to swallowing therapy procedures.

Gisel (1994) determined the efficacy of oral sensory-motor techniques in rehabilitation of children with moderate cerebral palsy and examined the rehabilitation effects in growth measures. Thirty five

children were assessed. Those children underwent 20 weeks of oral sensory-motor rehabilitation of 5-7 minutes a day, five days a week. A limited efficacy of this procedure was observed, because children maintained the same weight-age percentile than before the rehabilitation program. It was concluded that in order to favor this population growth, oral sensory-motor therapy should be combined with nutritional supplementation.

Miller et al (1994) presented a bibliographic compilation about efficacy of therapy in oropharyngeal dysphagia. They report that the researched authors described the use of specific approaches in certain populations, thus not discussing the rehabilitation efficacy, but the efficiency of an approach. Authors report that many approaches described in literature do not confirm their efficiency upon swallowing dynamics. Finally, the authors refer that diagnostic exams are essential for the verification of rehabilitation efficacy.

Logemann et al (1995) studied the effect of sour alimentary bolus (50% lemon juice and 50% barium) in pharyngeal swallowing measures of two groups of patients with neurogenic dysphagia. They found measurable changes in the duration of cricopharyngeal sphincter opening and in the pharyngeal response depending on the amount. They observed improvement in the oral transit with the ingestion of sour alimentary bolus. Although finding measurable changes in group 2, there wasn't elimination of aspiration. Authors stress that measurable measures should not be considered more important than the functional analysis of swallowing.

Rosenbeck et al (1996) studied the measurable variation and their effects upon the swallowing efficiency after pharyngeal swallowing stimulation in patients with encephalic vascular disease (EVD). They observed that the cold stimulation presented a great variation regarding changes in swallowing duration in 22 patients pos-EVD.

Crary (1995) studied the rehabilitation efficacy using a therapy program with biofeedback. Forty two patients with neurogenic dysphagia and 28 with mechanic dysphagia took part in the research. The functional oral intake scale was used to evaluate the rehabilitation efficacy. It was observed that 93% of patients with neurogenic dysphagia and 79% of patients with mechanic dysphagia improved in the functional scale. Furthermore, 100% of patients were able to orally intake some kind of food at the end of the therapy program.

Bath et al (1999) published a review article about rehabilitation efficacy in oropharyngeal dysphagia pos EVD, gathering studies that presented the sample's inclusion criteria. They concluded that only a few studies were accomplished, involving a few patients. They pointed out that the percutaneous endoscopic gastronomy would be responsible for improvements in rehabilitation and in the nutritional status, when compared to the nasogastric tube. They suggest that further researches are necessary in order to confirm how and which would be the effects of swallowing therapy or drug treatment in individuals pos-EVD with oropharyngeal dysphagia.

Deane et al (2001) compared the swallowing therapy efficacy with administration of placebo and the absence of treatment in oropharyngeal dysphagia in Parkinson's disease. In this review article, only randomized studies were selected. They concluded that there aren't enough evidences to affirm or deny the rehabilitation efficacy in oropharyngeal dysphagia through swallowing therapy in Parkinson's disease.

Hill et al (2004) published a review article about the treatment of oropharyngeal dysphagia in progressive muscular diseases. The authors did not identify randomized studies and the selected studies included adults and children. The type of treatment studied included food consistency changes, voluntary swallowing techniques, surgical interventions and enteral nutrition indication. They concluded that there aren't enough evidences about the efficacy of dysphagia treatment in those diseases.

Crary et al (2005) validated the use of the Functional Oral Intake Scale (FOIS) to assess the efficacy of rehabilitation of oropharyngeal dysphagia in patients with EVD, affirming that the scale is able to document changes in feeding transition in feeding skills.

Easterling et al (2005) evaluated the effect of Shaker's exercise in elderly individuals without oropharyngeal dysphagia. They observed that the performance of the exercise is associated with some discomfort that spontaneously solves itself within weeks. Authors referred that the laryngeal elevation and the upper esophageal sphincter opening depend on the complete program follow up.

Nguyen et al (2005) studied 12 patients with head and neck cancer and chronic oropharyngeal dysphagia after therapy. The dysphagia severity was monitored by videofluoroscopy through a scale varying from 1 to 7. No patients could reach normal swallowing. In an average of 29 months after treatment, the dysphagia had improved in 8 patients (67%), 3 patients (25%) didn't show any improvement and it got worse in 1patient (8%).

Prosiegel et al (2005) studied the efficacy of therapy with functional swallowing in 208 patients with neurogenic oropharyngeal dysphagia. Patients

were divided in three groups of different neurological etiologies (Group 1: posterior fossa tumor -TFP, Group 2: Wallenberg Syndrome -SW and Group 3: Encephalic Vascular Disease - EVD. Rehabilitation efficacy was significantly worse in group 1 when compared to group 2, and in group 2 when compared to group 3. After the functional swallowing therapy, 50.0% of patients from group 1 and 30.0% of patients from 2 still needed an alternative feeding via, and 100.0% of patients from group 3 went back to oral feeding.

Nguyen et al (2006) studied the efficacy of rehabilitation in patients with head and neck cancer who developed dysphagia after surgery. Authors selected 42 nonrandomized patients and established a classification for the degree of dysphagia varying from 1 to 7, before and after swallowing therapy. They concluded that speech-language therapy as well as the nasogastric tube are effective to reduce the severity degree of oropharyngeal dysphagia in this population.

CHART 1. REHABILITATION EFFICIENCY AND EFFICACY IN OROPHARYNGEAL DYSPHAGIA.

TYPE OF PROCEDURE	EFFICIENCY/EFFECT	EFFICACY
1.0-Manipulation of food consistency and amount.	1.0-Modulates the oral sensory-motor pharyngeal performance of oropharyngeal swallowing (Groher, 1987; Ekberg et al, 1988; Dantas et al, 1990; Perlman et al, 1993; Stachler et al, 1994; Preiksaitis et al, 1996; Power et al, 1997).	1.0- Consistency and amount changes of the alimentary bolus have a direct effect upon the oropharyngeal transit and are efficient for oral control and for aspiration control. Great changes will need nutritional in order to be effective in the general picture. (Bisch et al, 1994).
2.0-Head postural maneuvers.	2.0-Protects the lower airway, facilitates the food transit when there is unilateral palsy and paresy and helps oral propulsion (Ekberg, 1986; Logemann et al, 1989a; Rasley et al, 1993; Shanahan et al, 1993; Welch et al, 1993; Logemann et al, 1994; Logemann et al, 1997).	2.0-Effects caused by postural changes ease oropharyngeal transit and may have efficacy when able to minimize aspiration (Castell et al,1990; 1993).

3.0-Oral sensory-motor stimulation and oral control training.	3.0-Facilitates manipulation, control and oral propulsion.	3.0-Determines significant changes in oral control and ease oral intake. The oral control improvement, maximizing oral intake, is not yet effective to stabilize the nutritional condition in severe cases of malnutrition, being necessary a nutritional supplement (Gisel, 1994).
4.0-Cold stimulation.	4.0-Increases the excitability threshold of swallowing reflex (Lazzara et al, 1986; Rosenbek et al, 1991).	4.0-Systematic stimulations produce significant improvement in swallowing of specific volumes. Stimulation, however, should not reach only receptors of pillar of fauces and, as an isolated procedure, it does not guarantee efficacy (Ali et al, 1996).
5.0-Multiple swallowing	5.0-Eliminates food residues from the oral cavity and pharyngeal recesses.	5.0-Minimize oral and pharyngeal residues, indirectly contributing for the functional swallowing. Isolated, it is not effective (Dziadziola et al, 1992).
6.0- Mendelsohn's maneuver	6.0-Favors the laryngeal elevation during swallowing.	6.0-Effects maximize functional swallowing, specially when associated with biofeedback. Crary (1995a) reports cases of enteral feeding that became oral without risks, after rehabilitation.

7.0- Supraglottic swallowing	7.0-Protects lower airway, maximizing vocal chords closure.	7.0-Up to now, researches report its application with mechanic dysphagia Results were better associated with the mendelsohn's maneuver (Lazarus, 1993a). Sample was composed by only 1 patient and, therefore is not conclusive.
8.0- Super-supraglottic swallowing	8.0-Intensifies protection of lower airway, achieving glottal and of aryepiglottic folds closure (Logemann et, 1996).	8.0- Up to now, researches report its application with mechanic dysphagia. Although it is efficient to prolong glottal closure, it wasn't effective in eliminating aspiration in all cases. Different types of tumors, stages and radiation time were not considered in the discussion.
9.0- Masako's maneuver	9.0-Provides movements of pharyngeal walls (Fujiu et al, 1995).	9.0-Fujiu et al (1996) presented studies with normal individuals confirming there is movement in pharyngeal walls with such procedure. There are no studies verifying its efficacy in patients' rehabilitation.
10.0- Effortful swallow	10.0-Intensifies oral propulsion.	10.0-Maximizes functional swallowing.

11.0- Botox application in cricopharyngeal	11.0-Acts upon cricopharyngeal dysfunctions (Schneider et al, 1994; Manrique, 2005).	11.0-Although there is an immediate effect upon the cricopharyngeal muscle, studies do not report if there is a functional improvement of swallowing (Crary et al, 1995b; Blitzer et al, 1997).
12.0- Hurst's tube	12.0-Increases the excitability threshold of swallowing reflex and dilates the cricopharyngeal sphincter.	12.0-It has no efficacy upon the oral phase of swallowing. In case the oropharyngeal dysphagia has alteration in the swallowing reflex and cricopharyngeal sphincter, it may maximize functional swallowing.
13.0- Cricopharyngeal Myotomy	13.0- Mechanic dilatation of cricopharyngeal sphincter (Hirano, 1974; Lebo et al, 1976; Ross et al, 1982; Lindgren et al, 1990; Halvorson et al, 1994; Poirier, 1997).	13.0- It is used without considering the effects upon swallowing dynamics (Bonavina et al, 1985). According to Bucchholz (1995) in order to be effective, it depends on the analysis of the oral and the pharyngeal phase performance.
14.0-Biofeedback use .Indirect .Direct	14.0-Monitors the swallowing dynamics and facilitates the self-adjustment (Haynes, 1976; Park et al, 1997).	14.0-For some cases the direct procedure can be effective to improve the functional swallowing within weeks (Logemann et al, 1990; Freed et al, 1996; Denk et al, 1997).

15.0-Intra-oral prothesis	16.0-Compensate absent structures (Wheeler et al, 1980; Logemann et al, 1989; Pauloski et al, 1996).	16.0-In mechanic dysphagia the efficacy depends on the type of resection and on the radiotherapy time. In neurogenic dysphagia, the studies found did not evidence functional improvement, however they also did not correlate time of lesion or which patients improved (Selley et al, 1995).
TIPO DE PROCEDIMENTO	**EFICIÊNCIA/EFEITO**	**EFICACIA**
16.0-Aspirative surgeries	18.0-Impede the laryngotraqueal aspiration (Montgomey, 1975; Eisele, 1991; Manrique te al, 2000).	18.0-They are indicated only in cases of untreatable cases. The efficacy should also be discussed as regards quality of life
17.0-Shaker's exercise	19.0-Influences the cricopharyngeal sphincter opening (Shaker et al, 1997).	19.0-In oropharyngeal dysphagia, it is reported efficacy with the use of this procedure (Shaker et al, 2002).

Conclusion

Rehabilitation efficacy in oropharyngeal dysphagia depends on the elaboration of a therapeutic program that selects a group of procedures able to cause benefic effects on swallowing dynamics, reflecting satisfactorily in the general status of the individual.

Scientific researches studied in this article pointed out the necessity of attention in some issues involved in the oropharyngeal dysphagia research. One of these issues concerns the criteria used for defining the sample and the method. Recent studies have used heterogeneous samples making difficult the comprehension, once there are different manifestations and severity degrees in different samples. This matter is essential once for controlling the efficiency of a certain procedure it is necessary a homogeneous sample so that manifestations and severity degrees are similar. This kind of criticism is frequently found in studies that try to control the rehabilitation efficacy in neurogenic dysphagia. In the majority of studies about neurogenic dysphagia, there is a diversity of diseases and time of lesion. In mechanic dysphagia, it is also frequent the absence of control of the type of surgery and time of radiotherapy.

Another issue to be raised in the studies analyzed in this article is the absence of a detailed description of the therapeutic procedure used and the frequency. This kind of failure makes impossible the reproduction of the procedure with the same efficiency and, therefore, its comparison.

Besides the issues mentioned above, we should

remember that rehabilitation efficacy in dysphagia should use as criterion the functional swallowing. Recent studies rarely value the impact of findings in functional swallowing. For me, this is the item that jeopardizes the most researches about rehabilitation efficacy. All findings, specially the measurable ones, have no validity if they are not discussed emphasizing the effects upon functional swallowing. Furthermore, many times in the absence of measurable changes it is possible to observe results that allow a functional swallowing, although statistically significant measures are not found. For a better control of rehabilitation efficacy, recent researches have dedicated to establish functional swallowing control scales. Normally, these scales use the following criteria to measure rehabilitation efficacy: time of rehabilitation compared to its functional effects, type of feeding via with which the patient started rehabilitation and what changes were observed during the process, the increase of the amount or consistency change of oral intake, maintenance of nutritional condition, absence of bronchopulmonary complications, and feeding pleasure maintenance degree.

Every therapeutic action has limitations and it is up to us, researchers, to know them. Nevertheless, skepticism does not match with Science. The rehabilitation efficacy control in oropharyngeal dysphagia has presented progresses. And although the necessity of further studies, it has been responsible for the improvement of the quality of life of many patients with dysphagia. Therefore, every therapeutic procedure demands its efficacy control and for that, the actual moment of researches demands that our studies select many more criteria to define the sample and the methodology.

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