Temporal Variables in Voice Therapy

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Summary: Objective. This study analyzed temporal voice therapy data (duration and frequency) as reported in the scientific literature between 1975 and May 2013.

Methods. A PubMed search was conducted using the keywords "voice and therapy" and "therapy and dysphonia," resulting in 93 qualified publications. This information was complemented by data reported in scientific textbooks (47 publications).

Results. The results show that voice therapy lasts an average of 9.25 weeks distributed over 10.87 sessions of mostly 30 (36.36%) or 60 minutes (27.27%) and occurs once (34.55%) or twice (28.18%) per week. The total amount of time that a voice therapist spends face-to-face with the patient is 8.17 hours on average. Substantial geographic differences are observed, but only data from North America and Europe are sufficiently represented. For North American patients, more sessions (12.52) are reported over a shorter period (7.62 weeks), resulting in more face-to-face time (12.15 hours) between therapist and patient. However, the opposite trend is true for European patients, who average 10.99 sessions over 10.12 weeks, resulting in 7.68 hours of face-to-face time. The potential impact of diagnosis, clinical practices, prescription habits, health insurance rules, patient compliance, and study design on the representativeness of the data is discussed.

Conclusions. These results offer a frame of reference regarding international practices for temporal variables in voice therapy that may be useful when identifying voice therapy dosage and optimal practice.

Key Words: Temporal variables–Therapy duration–Therapy frequency–Voice therapy.

INTRODUCTION

The temporal aspects of voice therapy are an important issue for several reasons. The first of these is financial as a patient's health insurance must be considered. Long lasting therapies may have an important financial impact on a patient's budget with increased dropout risk as a consequence. In cases where the patient makes a living with his voice, any job loss due to dysphonia will be detrimental to his income. Health care insurance plans prefer to work with fixed budgets designated for each pathology or mode of treatment. Unpredictable periods of therapy are in disagreement with this policy. Second, there is an organizational aspect of concern as patients must integrate their therapy sessions with their family lives, social activities, and professional duties. The more frequent the sessions, the more therapy interferes with daily life. Finally, there is the important issue of (optimal) therapy dosage that has not been explicitly studied before, except in some specific approaches such as the "manual laryngeal musculoskeletal reduction technique"[1] or Lee Silverman Voice Therapy®.[2]

Compared with many other medical, pharmaceutical, or behavioral therapies, there is no standardized frame of reference on which prescribers and voice therapists can rely to estimate the therapy needs in terms of duration and frequency. Even preliminary information could be used to give the patient a time perspective at the beginning of his therapy. In general, therapists rely on the medical prescription (in cases where therapy is mandatory), the patient's functional limitations at the start of therapy, the patient's expectations and their own clinical experience with respect to the specific disorder to inform the total amount of time necessary to treat a given voice problem. Regarding the frequency of therapy sessions, there is a tendency to start with one or two sessions weekly and to gradually diminish that frequency.[3]

At present, there is no guideline or recommendation about the optimal duration and frequency of voice therapy. Even beginning that discussion is a delicate matter because few criteria and reliable reference data are available. Ramig and Verdolini[4] completed a literature review about the efficacy of voice therapy in which significant variations in temporal characteristics are at least remarkable. They referred to a study by Andrews, Warner and Stewart[5] where relaxation therapy was combined with electromyographical feedback techniques in the treatment of hyperfunctional voice disorders, and they reported treatment periods varying between 4 and 36 weeks. Ramig and Verdolini[4] also referred to a study by Roy and Leeper[1] in which patients with functional dysphonia were treated with manual compression techniques in a single session varying between 1 and 3 hours with satisfactory results. Elias et al[3] reported data from 244 therapists who spent 1 to 15 sessions treating patients with psychogenic dysphonia. Elias et al[3] also noticed a trend in which more experienced therapists required more sessions to treat these patients. A more recent study from Rodriguez-Parra et al[6] reported voice therapy in a heterogeneous group of voice disorder patients during 12 weeks (24 sessions of 45 minutes). An innovative approach was suggested by Patel et al[7] with a "Boot Camp" program of 1–4 days each with 4–7 hours of therapy by different therapists. These researchers also highlighted the lack of information about the effective number of sessions that are really necessary and assumed that short intensive periods of voice therapy may

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be more efficient than long lasting strategies. This hypothesis finds some support in the principles of motor learning that were recently introduced in other domains of speech therapy (dysphagia and aphasia). Intensive treatment for aphasia seems to be more effective than the same amount of therapy sessions spread out over a longer period of time.[8–10] However, it is generally accepted that a greater therapy frequency leads to a better ultimate performance.[11]

The goal of this study was to analyze temporal variables (therapy duration in weeks, sessions, hours of face-to-face contact, frequency, and session length) as reported in the scientific literature.

METHODS AND MATERIALS

Data collection

To obtain qualified data regarding therapy duration and frequency, a systematic survey was conducted using the electronic database PubMed (keywords: "voice AND therapy" and "therapy AND dysphonia"). The search results were limited to articles with publication dates ranging from 1975 to May 18th 2013. In general, no restrictions were made regarding to type of journal or study design. No restrictions were in place regarding the age of the patients, type and severity of the voice disorder, or the applied treatment. This method delivered 93 qualified publications.[2,4,6,12–94] In addition to the PubMed database, several international textbooks including case studies and general theory were consulted and resulted in an additional 47 qualified publications.[95–115]

Figure 1 represents the electronic search strategy, the initial number of search results, and the subsequent selection of qualified publications.

Publications were categorized as 'unqualified' when title and/or abstract did not mention a voice disorder and voice therapy (e.g., "Minimally invasive video-assisted thyroidectomy: a multi-institutional North American experience," "The voice of the patients: allergic rhinitis is not a trivial disease"). Full-text versions of publications with abstracts containing information about voice disorders and voice therapy or abstracts that alluded to this type of information but did not directly state it were analyzed. If therapy duration and/or therapy frequency were not reported, the publications were also categorized as "unqualified."

Data processing

For descriptive purposes, the data obtained were coded and analyzed using "IBM SPSS Statistics 19 (2010; IBM, Armonk, NY)." The data set contained 19 variables: article or book, date (year) of publication, book title, article title, book author, article author, journal, keyword, number of cases, mean age of cases (year), characteristics of cases and/or voice disorder, therapy duration (weeks), number of sessions, therapy frequency (sessions/week), session duration (minutes), specific therapy program, total amount of time a therapist spent face to face with a patient (hours), continent of publication, and country of publication. For example, using the method described previously, the following data were obtained from the publication "Vocal therapy with larynx compression after partial laryngectomy" by G. M. Mumovic published in Medicinski Pregled in 2011[12]: 66 men received voice therapy for 6 weeks after undergoing partial laryngectomy. All cases received 15 sessions on average with a therapy frequency ranging from two to three sessions a week. Session duration and consequently, the total amount of time spent face to face with the patient, were not mentioned.

To report the weighted mean—by the number of cases per study—of therapy duration (measured in weeks), session frequency and the total amount of hours that a therapist spent face to face with the patient, several extra variables including total therapy duration per study, total cases per study, total therapy sessions per study, and total amount of time spent with the patient per study were assessed.

RESULTS

This study aimed to provide a review of scientifically reported data concerning therapy duration and therapy frequency for voice disorder patients.

The majority of studies analyzed (66.43%; 93 studies) were obtained from electronic journals, whereas 33.57% (47 studies)

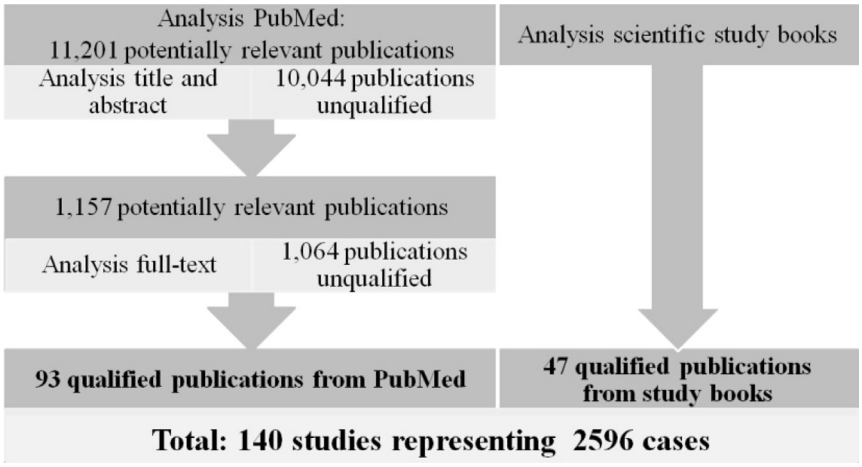

FIGURE 1. Overview of search strategy and selection of publications.