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ORIGINAL ARTICLE

Multidimensional effects of voice therapy in patients affected by unilateral vocal fold paralysis due to cancer[☆]

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KEYWORDS

Vocal cords paralysis;
Voice;
Voice disorders;
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Abstract

Introduction: Patients with unilateral vocal fold paralysis (UVFP) may demonstrate different degrees of voice perturbation depending on the position of the paralyzed vocal fold. Understanding the effectiveness of voice therapy in this population may be an important coefficient to define the therapeutic approach.

Objective: To evaluate the voice therapy effectiveness in the short, medium and long-term in patients with UVFP and determine the risk factors for voice rehabilitation failure.

Methods: Prospective study with 61 patients affected by UVFP enrolled. Each subject had voice therapy with an experienced speech pathologist twice a week. A multidimensional assessment protocol was used pre-treatment and in three different times after voice treatment initiation: short-term (1–3 months), medium-term (4–6 months) and long-term (12 months); it included videoendoscopy, maximum phonation time (MPT), GRBASI scale, acoustic voice analysis and the portuguese version of the voice handicap index (VHI).

Results: Multiple comparisons for GRBASI scale and VHI revealed statistically significant differences, except between medium and long term ($p < 0.005$). The data suggest that there is vocal improvement over time with stabilization results after 6 months (medium term). From the 28 patients with permanent UVFP, 18 (69.2%) reached complete glottal closure following vocal therapy ($p = 0.001$). The logistic regression method indicated that the Jitter entered the final

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model as a risk factor for partial improvement. For every unit of increased jitter, there was an increase of 0.1% (1.001) of the chance for partial improvement, which means an increase on no full improvement chance during rehabilitation.

Conclusion: Vocal rehabilitation improves perceptual and acoustic voice parameters and voice handicap index, besides favor glottal closure in patients with UVFP. The results were also permanent during the period of 1 year. The Jitter value, when elevated, is a risk factor for the voice therapy success.

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PALAVRAS-CHAVE

Paralisia das pregas vocais;
Voz;
Distúrbios vocais;
Reabilitação

Efeitos multidimensionais da terapia vocal em pacientes acometidos por paralisia unilateral da prega vocal devido a câncer

Resumo

Introdução: Pacientes com Paralisia Unilateral da Prega Vocal (PUPV) podem demonstrar diferentes graus de perturbação da voz, dependendo da posição da prega vocal paralisada. A compreensão da eficácia da terapia vocal nesta população pode ser um coeficiente importante para definir a abordagem terapêutica.

Objetivo: Avaliar a eficácia da terapia vocal em curto, médio e longo prazos em pacientes com PUPV e determinar os fatores de risco para falha na reabilitação da voz.

Método: Estudo prospectivo com 61 pacientes acometidos por PUPV foram inscritos. Cada indivíduo fez terapia vocal com um fonoaudiólogo experiente duas vezes por semana. Um protocolo de avaliação multidimensional foi utilizado no pré-tratamento e em três momentos diferentes após o início do tratamento de voz: curto prazo (1-3 meses), médio prazo (4-6 meses) e longo prazo (12 meses); incluiu vídeo-endoscopia, tempo máximo de fonação (TMF), escala GRBASI, análise de voz acústica e a versão em português do *Voice Handicap Index* (VHI).

Resultados: Várias comparações para a escala GRBASI e VHI revelaram diferenças estatisticamente significativas, exceto entre médio e longo prazo ($p < 0,005$). Os dados sugerem que há melhora vocal ao longo do tempo com resultados de estabilização após 6 meses (médio prazo). Dos 28 pacientes com PUPV permanente, 18 (69,2%) atingiram o fechamento glótico completo após a terapia vocal ($p = 0,001$). O método de regressão logística indicou que o Jitter entrou no modelo final como um fator de risco para melhora parcial. Para cada unidade de aumento de jitter, houve um aumento de 0,1% (1,001) da chance de melhora parcial, o que significa um aumento na chance de nenhuma melhora completa durante a reabilitação.

Conclusão: A reabilitação vocal melhora os parâmetros de voz perceptiva e acústica e o índice de incapacidade vocal, além de favorecer o fechamento glótico em pacientes com PUPV. Os resultados também foram permanentes durante o período de 1 ano. O valor de Jitter, quando elevado, é um fator de risco para o sucesso da terapia vocal.

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Introduction

Unilateral vocal fold paralysis (UVFP) may present as dysphonia, loss of the upper register of the voice, hoarseness, breathiness, throat pain, choking episodes or decreased vocal stamina.¹⁻⁵ Patients with UVFP may demonstrate different degrees of voice perturbation depending on the position of the paralyzed vocal fold.⁶⁻⁸

Treatment of unilateral vocal fold paralysis is designed to eliminate aspiration and improve quality of the voice. Different surgical techniques are available today: teflon, collagen, hydroxiapatite or autogenous micronized dermis, fat injection, type I thyroplasty and nerve muscle pedicle

transfer represent the surgical techniques mainly adopted. These studies conduct evaluations mostly in the immediate post-surgery period and three months after surgery.⁹⁻¹⁸

Only three studies have evaluated voice therapy efficacy for this population. Schindler et al.¹⁹ analyzed retrospectively voice modifications in 40 patients with UVFP from different etiologies before and after voice therapy. A multidimensional assessment protocol was used and it included videoendoscopy, the maximum phonation time (MPT), the GRBASI scale, spectrograms, perturbation analysis and the voice handicap index (VHI). Pre and post early treatment data were compared. A complete glottal closure was seen in 8 patients before voice therapy and in 14 afterwards. Mean

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