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Efeitos de um programa de intervenção fonoaudiológica na disfagia e na qualidade de vida em Doença de Parkinson.

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Aos meus pais que sempre me
incentivaram e apoiaram mesmo
em momentos difíceis.

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“You are never wrong to do the right thing”.

(Mark Twain)

Resumo

Introdução: A disfagia orofaríngea (DO) na Doença de Parkinson (DP) é um sintoma de alta prevalência, que pode resultar em complicações, como desnutrição, desidratação e pneumonia aspirativa, sendo que a infecção respiratória está entre as principais causas direta de óbito nos pacientes com DP. Estudos que buscam verificar a eficácia da terapia fonoaudiológica para DO nesta população ainda são limitados e sem grande impacto científico. Objetivo: Verificar a eficácia de programa de intervenção fonoaudiológica para indivíduos disfágicos com DP. Método: Estudo de caso controle, composto por três grupos: grupo experimental (dez participantes), grupo controle (oito participantes) e grupo placebo (seis participantes). Incluiu-se indivíduos com diagnóstico de DP e DO. Excluiu-se indivíduos com alteração de linguagem e/ou audição que impossibilite a compreensão de um programa de intervenção, com diagnóstico de demência e presença de qualquer outra doença neurológica associada. Realizou-se um pré-teste composto por triagem cognitiva, questionário sobre depressão e qualidade vida (QV). A avaliação de deglutição foi composta pelo exame objetivo, avaliação clínica, questionário SWALQOL e Escala FOIS. Aplicou-se um programa terapêutico composto pela manobra postural Chin-down e orientações sobre a alimentação. Resultados: Nas variáveis clínicas e sociodemográficas pré-teste não houve diferença significativa entre os três grupos. Observou-se melhora significativa na avaliação clínica da deglutição no grupo experimental para as consistências sólida ($p < 0,001$) e líquida ($p = 0,022$). Além disso, o grupo experimental apresentou melhora na QV, com diferença significativa para os outros grupos, no domínio frequência dos sintomas ($p = 0,029$). Conclusões: Verificou-se eficácia do programa de intervenção para o tratamento da DO em indivíduos com DP, na presente amostra, com melhora do padrão de deglutição e da QV relacionada a deglutição após a intervenção fonoaudiológica.

Palavras-chave: terapia, disfagia, Doença de Parkinson, fonoaudiologia

Abstract

Introduction: Oropharyngeal dysphagia (OD) in Parkinson's disease (PD) is a highly prevalent symptom, which can result in complications such as malnutrition, dehydration and aspiration pneumonia, moreover respiratory infection is among the main direct causes of death in PD patients. Studies that seek to verify the effectiveness of speech therapy for OD in this population are limited and without great scientific impact. Objective: To determine the effectiveness of speech-language therapy for dysphagia in PD. Method: a case control study, composed of three groups: experimental group (ten participants), control group (eight participants) and placebo group (six participants). It was included individuals diagnosed with PD and OD. It excluded subjects with language disorders and / or hearing that would prohibit the understanding of an intervention program, with a diagnosis of dementia and the presence of any other associated neurological disease. We conducted a pre-test consists of cognitive screening questionnaire on depression and quality of life (QOL). Swallowing assessment was made by physical examination, clinical evaluation, SWALQOL questionnaire and FOIS scale. Applied a therapeutic program consists of the postural maneuvers Chin-down and guidelines on swallowing. Results: In the clinical variables and pretest sociodemographic no significant difference among the three groups. A significant improvement in the clinical evaluation of swallowing in the experimental group to the solid consistency ($p < 0.001$) and liquid ($p = 0.022$). In addition, the experimental group showed improvement in QoL, with a significant difference for the other groups in the field frequency of symptoms ($p = 0.029$). Conclusions: There was effectiveness of the intervention program for the treatment of OD in individuals with PD, in this sample, with standard improves swallowing and related QOL swallowing after speech therapy.

Keywords: therapy, dysphagia, Parkinson's disease, phonoaudiology

SUMÁRIO

1 Introdução

A Doença de Parkinson (DP) é uma doença neurodegenerativa, caracteriz pela degeneração dos neurônios dopaminérgicos, em especial da substância negra do mesencéfalo, podendo afetar outras regiões do Sistema Nervoso Central (SNC), dentre eles o núcleo dorsal do nervo vago[1], o qual é responsável pela inervação dos músculos da faringe e laringe, envolvidos no processo de deglutição[2,3].

Dados da literatura estimam uma incidência de 36 mil novos casos de DP por ano na população brasileira, com uma prevalência de 3,3% em indivíduos acima de 64 anos de idade[4,5].

Embora, seja uma doença com predomínio de acometimento motor, sintomas não motores são frequentes na DP e dentre estes a disfagia. A disfagia na DP é um sintoma com alta prevalência e nem sempre associada à severidade da doença[6,7,8,9]. Ademais, pode-se verificar alterações em todas as fases da deglutição (oral, faringea e esofágica)[10,11,12].

A deteriorização do processo de deglutição pode levar, com frequência, à aspiração traqueal e, principalmente, quando a mecânica de proteção das vias aéreas está deficiente pode resultar em complicações, tais como desnutrição, desidratação e problemas pulmonares. Dados da literatura apontam que a infecção respiratória é a principal causa direta de óbito nos pacientes com DP, e está muito associada com imobilidade e disfagia[13,14,15,16].

Tendo em vista o impacto deste sintoma na vida indivíduos com DP vem crescendo o número de estudos que buscam verificar a eficácia da terapia fonoaudiológica para disfagia nesta população. Porém, este número ainda é limitado[10,17,18,19]. Os estudos existentes demonstraram os benefícios de algumas estratégias terapêuticas especificas, como utilização de biofeedback durante a intervenção terapêutica[20,21,22], uso do Treinamento de força muscular expiratória para a deglutição[17], efeitos da estimulação elétrica de superfície[23], efeitos dos exercícios miofuncionais para a deglutição[6,24] e mudança de consistência alimentar[10,18,19]. Contudo, estas evidências ainda estão longe de serem conclusivas e não apresentam grande impacto científico[10,25].

2 Revisão da literatura

2. 1 Estratégias de busca

Realizou-se esta revisão de literatura, com o objetivo de discorrer sobre os aspectos relacionados à Doença de Parkinson (DP), disfagia e reabilitação fonoaudiológica para a disfagia. A busca dos artigos envolveu as seguintes bases de dados: Lilacs, Scielo, Pubmed, Biblioteca Cochrane e Periódicos CAPES. Foram incluídos apenas artigos nos idiomas português e inglês, publicados no período entre janeiro de 2005 a agosto de 2015. Os descritores utilizados foram: doença de Parkinson (Parkinson disease), deglutição (swallowing), transtornos de deglutição (dysphagia e swallowing disorders), reabilitação (rehabilitation) e qualidade de vida (quality of life) isoladamente e cruzados entre si.

Na busca dos estudos analizou-se e selecionou-se somente estudos cujo título ou resumo evidenciassem relação com o objetivo deste trabalho. Posteriormente a seleção dos resumos de artigos encontrados, correspondentes a questão proposta, realizou-se a recuperação do texto completo dos estudos.

Na figura 1 representa-se o fluxograma de estudos encontrados dentre as combinações realizadas, juntamente com o total de artigos incluídos nesta revisão.

A partir dos estudos analisados e incluídos na presente revisão sistemática realizou-se a revisão de literatura sobre os tópicos: Doença de Parkinson (DP), disfagia, disfagia orofaríngea na DP e intervenção fonoaudiológica para disfagia orofaríngea em indivíduos com DP.

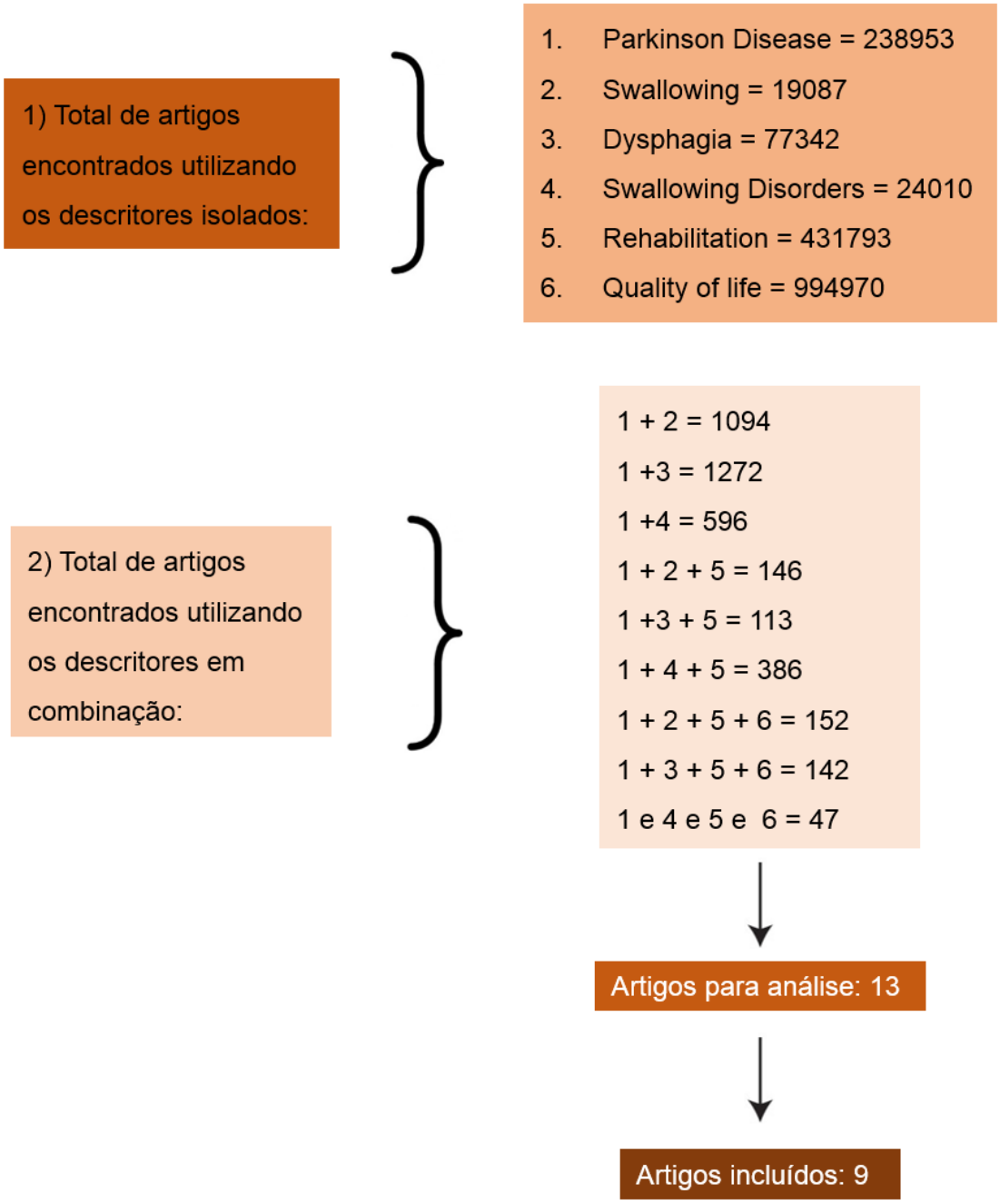

Figura 1 Estratégia de busca de referências bibliográfica com base nos objetivos deste estudo.

2. 2 Doença de Parkinson

Descrita pela primeira vez por James Parkinson em 1817, em seu trabalhado intitulado *An Essay on the Shaking Palsy* (Parkinson, 1817) a Doença de Parkinson (DP) é a segunda doença neurodegenerativa mais prevalente no mundo, com uma

incidência mundial entre 1 e 20 a cada 1000 indivíduos/ ano[26]. Dados sobre a população brasileira apontam uma estimativa de incidência de 36 mil novos casos por ano, com uma prevalência de 0,7% indivíduos com DP na faixa etária de 60 a 69 anos e de 1,5% entre 70 a 79 anos[4]. Em um estudo populacional brasileiro verificou-se uma prevalência de 3,3% em indivíduos acima de 64 anos de idade[5].

Atualmente, a DP é considerada uma doença multissistémica, a qual afeta gradualmente múltiplos componentes de diversas redes funcionais em todo o sistema nervoso[27]. Isto ocasiona uma diversidade de sintomas não-motores[28].

A DP é caracterizada pela degeneração dos neurônios dopaminérgicos, em especial da substância negra do mesencéfalo, por corpos de inclusão intracelulares (Corpos de Lewy)[27]. Outros locais do Sistema Nervoso Central (SNC), também são afetados, dentre eles o núcleo dorsal do nervo vago, o qual é responsável pela inervação dos músculos da faringe e laringe envolvidos no processo de deglutição[2,3,26,27].

Esta patologia é caracterizada pela presença dos sinais e sintomas motores, tremor de repouso, rigidez muscular, bradicinesia e instabilidade postural. Estes sintomas apresentam manifestação inicialmente unilateral e progressão assimétrica[20].

Sabe-se que a degeneração neuronal, na DP, começa, em muitos casos, muitos antes do diagnóstico, e apesar de inicialmente descrita como uma doença essencialmente motora, os sintomas não-motores são bem prevalentes nestes indivíduos. Dentre os sintomas não-motores observa-se hiposmia, distúrbio do sono REM (*rapid eye movements*), distúrbios de marcha, fáceis em máscara, alteração de voz, disartria, disfagia, sialorréia, disfunção sexual, câimbras, dores, parestesias, incontinência urinária, obstipação intestinal, alterações da escrita (micrografia), déficits cognitivos (evoluindo para demência em muitos casos) e quadros psiquiátricos depressivos e ansiosos[3,24,29].

O diagnóstico da DP é essencialmente clínico, realizado por meio dos dados coletados na anamnese e no exame físico, bem como na exclusão de outras causas de parkinsonismo. Atualmente, utilizam-se os critérios estabelecidos pelo UK Parkinson's Disease Society Brain Bank para o diagnóstico clínico de DP[30].

A DP apresenta uma etiologia idiopática. Apesar da gama de estudos realizados nas últimas décadas sua etiologia não está totalmente esclarecida.

Contudo, acredita-se que um conjunto de fatores genéticos e ambientais está associado ao surgimento da doença, podendo interagir e contribuir para o desenvolvimento neurodegenerativo da DP. Além disso, verifica-se que processo de envelhecimento está intimamente interligado a esta afecção devido à aceleração da perda de neurônios dopaminérgicos com o passar dos anos[31].

Atualmente, a Escala de Hoehn e Yahr Modificada (H&Y – Degree of Disability Scale), desenvolvida em 1967, é utilizada como instrumento para classificar o grau de severidade da doença. Trata-se de um instrumento que permite a classificação da incapacidade dos indivíduos com DP, de forma rápida e prática. Compreende sete estágios de classificação, avaliando a gravidade por meio de medidas globais de sinais e sintomas motores[32].

No que diz respeito à mortalidade na DP, verifica-se que a infecção respiratória apresenta destaque dentre as causas direta de óbito nos pacientes com DP. Dados apontam para uma prevalência de 30% a 45% de pneumonia dentre as causas de óbito em pacientes com DP[13,14,15,16,33]. Devido ao fato de tal comorbidade estar muito associada com imobilidade e disfagia, percebe-se a importância do tratamento fonoaudiológico para disfagia nestes indivíduos, com o objetivo de prevenir ou retardar o aparecimento de pneumonia aspirativa.

2. 3 Disfagias

A deglutição é uma atividade coordenada que permite a passagem ininterrupta do conteúdo oral para o estômago, podendo ser este conteúdo o bolo alimentar, saliva ou secreções, de forma segura. Esta função é coordenada pelo córtex cerebral, tronco cerebral e nervos encefálicos. É composta por fases intrinsecamente relacionadas e divididas de acordo com a região em que se desenvolve em preparatória oral e oral (voluntárias) e faríngea e esofágica (involuntárias)[34,35,36,37,38]. O ato de deglutir ocorre aproximadamente 600 vezes por dia em um homem adulto sadio[39].

Qualquer desordem no processo de deglutição que apresente risco de aspiração é chamada de disfagia, podendo ter como causa um problema orgânico ou funcional[34,35,36]. A disfagia é caracterizada por alterações no funcionamento de qualquer fase da deglutição, em consequência de comprometimento neurológico,

mecânico ou psicogênico[38]. Tal distúrbio gera risco de desidratação, desnutrição, pneumonia aspirativa, podendo levar a óbito [35,37].

A disfagia pode ser classificada de acordo com a região anatômica em dois tipos distintos: orofaríngea e esofágica. A disfagia orofaríngea refere-se a dificuldades na passagem do bolo alimentar da boca para o esfíncter esogágico superior. Já a disfagia esofágica se refere aos distúrbios na passagem do bolo alimentar do esfíncter esofágico superior para o estômago. O fonoaudiólogo é o profissional habilitado ao tratamento da disfagia orofaríngea[34,36].

As disfagias orofaríngeas estão frequentemente associadas ao quadro clínico de diversos distúrbios neurológicos, afetando, com maior repercussão, tanto a fase oral quanto a fase faríngea da deglutição[38].

Os sintomas típicos da disfagia incluem alteração de mastigação, atraso ou ausência do reflexo de deglutição, regurgitação nasal, múltiplas deglutições, controle de saliva diminuído, tosse e/ou engasgos nas refeições, penetração laríngea e aspiração traqueal[35].

O diagnóstico da disfagia é realizado por meio da avaliação clínica da deglutição juntamente com exames objetivos, podendo ser estes a avaliação endoscópica funcional da deglutição (FEES) e a videofluoroscopia da deglutição[35].

A avaliação endoscópica funcional da deglutição (FEES) caracteriza-se por um método de fácil realização, baixo custo e sem exposição à radiação, podendo ser realizado a beira do leito. O exame consiste na passagem de uma sonda nasofibrolaringoscopia pelo nariz permitindo a visualização da faringe e laringe. Durante o exame pode ser ofertado alimentos de diversas consistências, tingidos com corantes alimentares, afim de que se permita a visualização da dinâmica da deglutição. Este exame permite a determinação das consistências alimentares mais seguras ao indivíduo e realização de manobras facilitadoras que possam ser utilizadas na terapia fonoaudiológica[38].

A videofluoroscopia permite a visualização da propulsão do bolo alimentar, da boca até a abertura esofagiana. Assim como a FEES, permite a testagem de diferentes consistências alimentares e manobras terapêuticas[39]. Tem como vantagens quando comparada a FEES a possibilidade de mensurar componentes da fase faríngea, quantificar a aspiração e permite a visualização de todo o trato aerodigestivo superior. Contudo, suas desvantagens são a exposição à radiação,

bem como a ingesta de sulfato de bário, o que não permite a realização deste exame frequentemente pelo mesmo indivíduo[40].

2. 4 Disfagia Orofaríngea na Doença de Parkinson

A disfagia orofaringea é sintoma agravante na DP, o qual pode ter um impacto negativo na qualidade de vida, prejudicar a ingestão de alimentos e medicamentos, podendo levar, com frequência, à aspiração traqueal. Quando a mecânica de proteção das vias aéreas está deficiente este sintoma tende a resultar em complicações, tais como desnutrição, desidratação e pneumonia aspirativa. As taxas de prevalência de disfagia na DP encontradas na literatura variam de 70-100%dos indivíduos[7,8,9,13,14,15,16,20]. Além disso, verifica-se um risco relativo de 3.2 da presença deste sintoma na DP, quando comparado com controles saudáveis. Sabe-se que a disfagia é um sintoma frequente no decorrer da evolução da DP, porém, nem sempre está associada à severidade da doença[6].

Os principais sinais e sintomas de disfagia na DP são: aumento do tempo de trânsito oral; dificuldade na formação do bolo alimentar; resíduo em cavidade oral; pobre ejeção do bolo alimentar; múltiplas deglutições; escape posterior do bolo alimentar; reflexo de deglutição diminuído; bradicinesia orofaríngea; alteração no fechamento de pregas vocais; redução no movimento anterior do osso hióde; redução na motilidade faríngea e esofágica; estase de alimento em faringe; disfunção do esfíncter esofágico; refluxo gastro-esofágico; penetração laríngea e aspiração traqueal[10,11,12,41].

A fisiopatologia subjacente da disfagia relacionada com a DP ainda é pouco compreendida. No estudo de Suntrup et.al. (2013), realizado com 20 participantes com DP (10 disfágicos e 10 não disfágicos) e 10 controles pareados por idade e sexo sem disfagia, objetivou-se verificar as áreas cerebrais com maior ativação durante a deglutição. Realizou-se o exame FEES, bem como o exame de Magnetoencefalografia (MEG) e aquisição de dados pela eletromiográfica, durante a deglutição dos participantes.

Nos resultados da MEG observou-se que indivíduos saudáveis tiveram uma ativação extensa relacionados com a deglutição em áreas corticais sensório-motor primário e secundário com máxima ativação encontrada no giro pré-central rostromedial bilateralmente.

Ao passo que, indivíduos com DP não-disfágicos apresentaram uma ativação focal em partes caudolateral do sensório-motor primário e pré-motora do córtex e inferolateral lobo parietal. A ativação da área motora suplementar foi significativamente reduzida em comparação com o grupo de indivíduos saudáveis.

Já nos indivíduos com DP disfágicos encontrou-se uma forte redução global das atividades relacionadas à tarefa de deglutição. Além disso, nos indivíduos com DP não-disfágicos observou-se uma proeminente mudança de direção lateral do pico de ativação do córtex parietal motor e pré motor a partir da iniciação movimento de deglutição, enquanto a atividade em área motora suplementar foi significativamente reduzida. Este padrão distinto não foi encontrado em pacientes disfágicos[28].

De acordo com estudo de Monteiro at.al (2014) indivíduos com DP apresentam redução na sensibilidade laríngea e no reflexo da tosse, tornando-se mais propensos a aspiração silente. Além disso, o tempo de trânsito faríngeo esteve associado com a redução da elevação laríngea e com um maior risco de aspiração em pacientes com DP. Embora, tais alterações possam ser detectadas nos estágios iniciais da DP, elas podem progredir silenciosamente até que as queixas clínicas apareçam, geralmente em estágios tardios e avançados, quando as opções de reabilitação são reduzidas[33].

O fato de a disfagia poder ser subclínica ou assintomática demonstra que é plausível que os pacientes gradualmente adaptem-se a este sintoma como uma consequência natural da progressão da doença. Como principais exemplos de tais adaptações observa-se diminuição do tamanho do bolo alimentar, mudança de consistência alimentar e exclusão de alimentos que ocasionam maior dificuldade na alimentação. Além disso, devido à presença deterioração cognitiva ou problemas sensoriais, os indivíduos com DP podem ter um risco aumentado de complicações devido à subestimação da disfagia. Estes dados enfatizam a necessidade de uma abordagem clínica de disfagia pró-ativa, principalmente devido às graves conseqüências clínicas deste sintoma[9].

2. 5 Intervenção fonoaudiológica para disfagia orofaríngea em indivíduos com DP

Na presente revisão sistemática encontrou-se nove artigos que abordassem sobre a intervenção fonoaudiológica para disfagia orofaríngea em indivíduos com

DP. A seguir apresentar-se-á um breve resumo dos principais achados desses estudos.

Felix et.al. (2008) realizaram um estudo com quatro indivíduos com DP, aos quais aplicou-se um programa de reabilitação fonoaudiológica que incluiu oito manobras de deglutição juntamente com um recurso de biofeedback para a manobra de deglutição com esforço. Foram realizadas sessões diárias de segunda a sexta-feira durante duas semanas consecutivas. Após o programa terapêutico observou-se melhora no padrão de deglutição para alguns aspectos e para a consistência liquida[20].

Troche et.al. (2010) verificaram os efeitos de um programa de quatro semanas de treinamento de força muscular expiratória (ESMT), por meio de um ensaio clinico randomizado cego com 60 participantes com DP. Os pacientes foram divididos em dois grupos, tratamento ativo e passivo. Com relação à segurança da deglutição medida pela escala de penetração e aspiração[42] não observou-se diferença entre as características de linha de base nos dois grupos. Após o programa terapêutico verificou-se uma melhora nos escores médios da escala somente no grupo que realizou o tratamento ativo. Além disso, observou-se que idade, sexo e gravidade da doença não tiveram influência significativa sobre os efeitos do tratamento[17].

Os efeitos da terapia com Estimulação Elétrica de Superfície (EES) na deglutição de indivíduos com DP foram analisados no estudo de Baijens et.al. (2012). Foi aplicado um protocolo de sessão única da EES em indivíduos com DP e controles saudáveis pareados por idade e gênero. Observou-se poucos efeitos significativos, no exame de videofluoroscopia, após uma sessão de EES utilizando diferentes posições dos eletrodos em pacientes com disfagia e DP, sendo alguns iguais nos controles, podendo evidenciar um efeito placebo[23].

No estudo de Luchesi et.al (2012), observou-se após o programa terapêutico melhora na funcionalidade da deglutição, com melhora na escala funcional de ingestão por via oral (FOIS). Além disso, as estratégias mais indicadas para estes indivíduos foram modificações sobre às características e consistência do bolo alimentar e a manobra de deglutições múltiplas. Este estudo foi realizado com 24 pacientes, com diagnóstico de DP os que foram acompanhados em um ambulatório fonoaudiológico. O programa de gerenciamento da disfagia era baseado na adequação da consistência e volume para alimentação, além de manobras ou

exercícios necessários para melhora da deglutição, sendo especifico para cada participante[43].

Argolo et.al. (2013) avaliaram a eficácia de um programa terapêutico de cinco semanas, com um protocolo único de exercícios de motricidade oral, realizado duas vezes ao dia, cinco dias por semana, sendo somente um dos cinco dias com supervisão fonoaudiologica, nos demais dias os participantes eram orientados a realizar os exercícios em casa. A amostra foi composta por 15 indivíduos. Os resultados demonstraram melhora na contenção do bolo alimentar, redução de múltiplas deglutições, diminuição de resíduos em língua, valéculas e seios piriformes. Desta forma, observou-se que após o programa terapêutico os indivíduos foram capazes de controlar de maneira mais eficiente o alimento na boca, realizar uma melhor ejeção oral, ocasionando uma diminuição nos resíduos pós deglutição. Além disso, após o estudo observou-se redução na pontuação total do questionário Quality of Life in Swallowing Disorders (SWAL-QOL) em nove indivíduos evidenciando uma melhora na qualidade de vida. Contudo, esta diferença na pontuação não apresentou correlação com a avaliação de deglutição[24].

Em um estudo com o objetivo de verificar a eficácia da informação visual durante o tratamento da disfagia em pacientes com DP verificou-se melhora significativa da deglutição no grupo experimental (terapia de deglutição vídeo-assistida) e no grupo controle (terapia convencional). Contudo, no exame FEES observou-se uma redução maior, significativamente, de resíduo de alimento na faringe no grupo experimental em comparação ao controle. Além disso, observou-se melhora nas pontuações do SWAL-QOL em ambos os grupos, porém com diferença significativa entre os grupos, evidenciando uma melhora maior no grupo experimental. A amostra foi composta por 42 indivíduos com DP e disfagia divididos aleatoriamente nos dois grupos. Ambos os grupos receberam seis sessões terapêutica, pelo mesmo terapeuta e com as mesmas orientações[21].

No estudo de Athukorala et.al. (2014) realizado com 10 pacientes observou-se que as dez sessões de terapia fonoaudiológica utilizando o biofeedback por meio da Eletromiografia (EMG), por um período de duas semanas, pode ter aumentado a coordenação neuromuscular, o tempo, a velocidade de reação, e o planejamento do movimento das estruturas orofaciais nesta amostra. Além disso, a consciência cortical intensificada por meio do biofeedback demonstrou ter contribuído para um

melhor planejamento e sequenciamento dos movimentos, resultando em uma melhora da deglutição. Encontrou-se, também, melhora na qualidade de vida após o tratamento medida por meio do questionário SWALQOL[22].

Em um estudo[6] brasileiro recente, no qual se acompanhou a evolução terapêutica de 24 pacientes com disfagia e DP, por meio da FEES e da escala FOIS, os pacientes receberam terapia fonoaudiológica para adequação da consistência e volume dos alimentos, manobras facilitadoras ou exercícios para melhorar Da funcionalidade da deglutição, a cada três meses durante cinco anos, sendo orientados a realizar as manobras e/ou exercícios diariamente em casa. Dos 24 indivíduos que participaram do estudo, dez apresentaram melhora da deglutição, cinco permaneceram estáveis e nove pioraram durante o acompanhamento[6].

Por fim, na revisão sistemática de Russel et.al. (2010) sobre terapia fonoaudiológica para voz e deglutição em indivíduos com DP, no que se refere à deglutição verificou-se uma escassez de estudos sobre O tema. Apenas um artigo verificou a eficácia de um programa terapêutico somente para a deglutição. O compilado sobre os estudos encontrados demonstrou que apenas três métodos específicos de terapia fonoaudiológica para a deglutição melhoraram esta função, sendo estes: o treinamento de força muscular expiratória (EMST), o qual melhorou o reflexo de tosse e medidas de comprometimento das vias aéreas; o tratamento intensivo de voz, que levou a uma melhora na mobilidade de língua e na ejeção do bolo alimentar; e a terapia de fala intensiva, a qual evidenciou e melhora no tempo de deglutição para as consistências sólida e líquida. Mesmo não sendo tratamentos direcionados a deglutição observou-se melhora na função, talvez pelo recrutamento dos mesmos músculos que estão envolvidos nas funções de voz, fala e deglutição[25].

Desta forma, observa-se que embora a disfagia seja um sintoma frequente e de grande impacto na DP há na literatura poucos estudos sobre a eficácia da reabilitação e gerenciamento deste sintoma em indivíduos com DP. Além disso, a grande maioria apresenta resultados inconclusivos com pequeno impacto científico.

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3 Justificativa

A DP é uma doença essencialmente motora, porém com uma alta prevalência de sintomas não motores como declínio cognitivo, disfagia, perda da expressão facial, micrografia e alteração do sono[3]. A disfgaia na DP apresenta alta prevalência podendo acometer indivíduos em todos os estágios da doença. Desta forma estudos clínicos sobre reabilitação fonoaudiológica nesta população são de grande importância, com o objetivo de explorar estratégias terapêuticas que diminuam o risco de aspiração nesta população.

Além disso, no que se refere aos efeitos da manobra postural Chin-down na reabilitação de pacientes com DP os resultados são inconclusivos, tendo seus efeitos testados apenas para a consistência líquida. Evidências sobre o efeito desta manobra na função de deglutição, com diversas consistências são necessárias para se verificar a eficácia desta como opção terapêutica para disfagia orofaríngea na DP.

4 Objetivo

4.1 Objetivo Geral

Verificar a resposta terapêutica após programa de intervenção fonoaudiológica em alterações de deglutição em indivíduos com Doença de Parkinson.

4.2 Objetivos específicos

- Avaliar os efeitos larígeos, a deglutição funcional e a qualidade de vida após um programa de intervenção fonoaudiológica sobre a disfagia orofaríngea;
- Comparar avaliações otorrinolaringológica, fonoaudiológica e da qualidade de vida entre o grupo controle e grupo experimental;
- Verificar relação entre resposta terapêutica e qualidade de vida;
- Correlacionar as alterações de deglutição com idade, sexo e condição clínica.

5 Artigos científicos

5.1 Artigo 1: Effect of Chin-down postural maneuver in swallowing therapy for Parkinson's disease

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Keywords: therapy, dysphagia, Parkinson's disease, phonoaudiology

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Abstract

Purpose: To verify the effectiveness of chin-down posture maneuver in swallowing therapy for Parkinson's disease (PD). Method: Case control study, with 3 groups: experimental group (10 participants), control group (8 participants) and placebo group (6 participants). The included subjects were individuals diagnosed with PD and oropharyngeal dysphagia. The excluded subjects were individuals with language and/or hearing disorders, which can complicate the understanding of an intervention program, subjects with diagnosis other neurological illnesses. A pre-test of cognitive screening, through a questionnaire about depression and quality of life, was conducted. Swallowing assessment was performed through physical examination, clinical evaluation and SWALQOL and FOIS Scale questionnaires. A therapeutic program, which consisted of Chin-down postural maneuver and orientations on feeding, was applied. Results: From the clinical and pre-test sociodemographic variables there was no significant difference among the three groups. It was observed significant improvement in the clinical evaluation of swallowing, in the EG, to the solid ($p < 0.001$) and liquid ($p = 0.022$) consistencies. In addition, the EG presented improvement in QoL, with significant difference in comparison with the other groups, in relation to frequency of symptoms ($p = 0.029$). Conclusion: The postural maneuver Chin-down improved swallowing performance and self-perception, but not the laryngeal signs.

Introduction

Dysphagia is a highly prevalent symptom in Parkinson's Disease (PD) (Kalf, Swart, Bloem, & Munneke, 2012). In the early stages of the disease, it may be present in up to 80% of patients and, in advanced stages, the incidence may increase to 95% (Wintzen et al.,1994; Nagya, Kachi, Yamada, & Igata, 1998; Kalf, Swart, Bloem, & Munneke, 2012). Signs and symptoms of dysphagia in PD may occur in oral, pharyngeal and esophageal swallowing phases. Laryngeal penetration and pulmonary aspiration are the most aggravating signs (Smith, Roddam, & Sheldrick, 2012; Argolo, Sampaio, Pinho, Melo, & Nóbrega, 2015; Kim et al., 2015). Such signs and symptoms may result in complications, such as malnutrition, dehydration and lung problems. Published data indicate that respiratory infection is the main direct cause of death in patients with PD, and it is highly associated with immobility and dysphagia. There is prevalence from 30% to 45% of pneumonia among the death causes of patients with PD (D'Amelio et al., 2006; Pennington, Snell, Lee, & Walker, 2010; Macleod, Taylor, & Counsell,2014; Pinter et al., 2014).

Although dysphagia is a complicated PD symptom, the number of studies about the effects of phonoaudiological therapy for oropharyngeal dysphagia in this disease is still limited. There are studies on use of biofeedback during the therapeutic intervention (Felix, Corrêa, & Soares, 2008; Manor, Mootanah, Freud, Giladi, & Cohen, 2013; Athukorala, Jones, Sella, & Huckabee, 2014), about the use of expiratory muscle strength training for swallowing (Troche et al., 2010), about the effects of surface electrical stimulation (Baijens et al., 2012) and on myofunctional exercises for swallowing (Argolo, Sampaio, Pinho, Melo, & N´obrega, 2013; Luchesi, Kitamura, Mourão, 2015). However, these evidences are far from conclusive. The only studies on rehabilitation and management of oropharyngeal dysphagia in patients with PD still do not have conclusive results (Russell, Ciucci, Connor, & Schallert, 2010; Smith, Roddam, & Sheldrick, 2012).

Smith et.al. (2012), in a literature review on phonoaudiological intervention for oropharyngeal dysphagia in PD, found only nine studies on this subject. From these, only two (Logeman et al., 2008; Robbins et al., 2008) reported the effect of chin-down posture maneuver. Logemann et.al. (2008) conducted, so far, the largest study on compensatory approaches for oropharyngeal dysphagia in PD. The authors compared strategies used in the treatment of oropharyngeal dysphagia: chin-down posture maneuver and changes in food consistency. The results showed that the postural maneuver was the least effective strategy in the prevention of liquids

aspiration, compared with change in food consistency. The same effects were found in a study by Robbins et al. (2008). Although this study did not demonstrate differences of interventions to prevent pneumonia, the authors suggest that swallowing becomes safer as the food consistency changes (thickened liquids). Other articles show improvements in some swallowing parameters, after the investigated treatment strategies (change of food consistency, tactile thermal oral stimulation, myofunctional exercises, Lee Silverman Voice, exercises with biofeedback, expiratory muscle training), but no significant improvements in swallowing global function.

As it was previously described, up to this moment, studies which investigate the effectiveness of the Chin-down postural maneuver in rehabilitation of dysphagic PD patients have applied it only in an isolated moment, during the performance of a swallowing objective examination. It does not enable a therapeutic process to correctly learn the maneuver. They have tested it only in one food consistency (liquid consistency), or they have applied it with other therapeutic strategies, with no opportunity to verify its isolated effectiveness. So, this study has the purpose of verifying the effectiveness of the maneuver application, in isolation, in a therapeutic program, as well as testing its effectiveness with different food consistencies.

Methods

Study stages

This is a case-control study performed from March 2014 to May 2015. The study consisted of six stages, which were: 1. Recruiting of participants; 2. Criteria for inclusion and exclusion; 3. Pre-test; 4. Pre and post-intervention; 5. Intervention; 6. Retest.

Recruiting of participants

Participants were recruited from a Movement Disorders Clinic from a reference hospital, in Rio Grande do Sul, Brazil. It was obtained from participants the written free and informed consent to participate in the research. This study was approved by the hospital central research ethics committee.

Inclusion and exclusion criteria

The included subjects were patients with diagnosis of Parkinson's disease, according to the criteria from the United Kingdom Parkinson's Disease Society Brain Bank criteria for idiopathic PD (Hughes, Daniel, Kilford, Lees, 1992) also with diagnosis of oropharyngeal dysphagia by fiberoptic endoscopic evaluation of swallowing (*FEES*), according to the criteria from Santoro et.al. (2011), and with points in the Hoehn and Yahr Staging Scale (H & Y - Degree of Disability Scale) (Hoehn & Yahr, 1967), used to assess the severity of PD. As exclusion criteria, there were the following aspects: presenting language and/or hearing disorders, which could complicate the understanding of an intervention program, diagnosis of dementia and diagnosis of other neurological illnesses.

Pre-test

It was performed cognitive screening which consists of Mini-Mental State Examination (*MMSE*) (Bertolucci, Brucki, Campacci, & Juliano, 1994) and Montreal Cognitive Assessment (*MoCA*) (Sarmento, 2009) It was also applied the instruments Parkinson Disease Questionnaire-39 (*PDQ-39*), translated to Portuguese, and the Beck Depression Inventory (*BDI*) (Cunha, 2001). These tests were applied in order to verify the influence of cognitive aspects, depression and quality of life in the therapeutic process. These tests were selected based on the recommendations of the Movement Disorders Society for cognitive screening, screening for depression and quality of life in individuals with PD.

Pre and post-intervention

To evaluate the interventions effectiveness, an evaluation of swallowing in two moments of assessment (before and after intervention) was conducted. The evaluation was conducted in three stages: physical examination (*FEES*), clinical evaluation and assessment of quality of life related to swallowing (*SWALQOL*).

The objective examination of swallowing was performed through fiberoptic endoscopic evaluation of swallowing (*FEES*). First, it was tested the prior state of secretion in the nasopharyngeal structures, oropharynx and laryngopharynx. Next, the individual received liquid consistency offered through syringe, 3 and 5ml of water with edible blue food coloring. For the pasty consistency, 3 and 5ml of thickened water was offered through syringe with edible blue food coloring. It was offered ¼- water and salt biscuits with edible blue food coloring to assess the solid consistency. No anesthetic was used for the examination. The

images were later analyzed by an otolaryngologist physician, experienced in the dysphagia area.

It was observed the presence of thickening on the posterior laryngeal wall, tremor in structures (base of tongue and vallecula), early escape (characterized by the presence of food in the hypopharynx or larynx before the swallowing reflex was triggered), vallecular stasis in glossoepiglottic folds and pyriform sinus (characterized by accumulation of food after the third swallowing on the mentioned structures), penetration (characterized by the presence of food in the laryngeal vestibule), tracheal aspiration (characterized by food intake in the region located below the vocal folds, in the subglottic region and in the trachea, at any time of swallowing) and cough reflex. The alterations were classified as present or absent. The equipment used was the flexible nasopharyngoscope Maschida ENT-III, 3.2mm, with Xerônio Storz light source, Video Monitor Storz, DVD recorder (Digital Disc Video) Samsung R170 and media 4.7GB DVD Maxprint (envelope).

Clinical evaluation of swallowing was performed by a graduated phonoaudiologist, previously trained to apply the protocols. All the evaluations were performed by the same professional. This evaluation had the purpose of checking signs and symptoms of oropharyngeal dysphagia. It was used solid food consistency (half portion of bread) and liquid (100ml of water) evaluated by free demand. The analyzed signs and symptoms were based on the area literature (Logemann, Veis, & Colangelo, 1999; Padovani, 2010), which are: history of aspiration pneumonia; alert state; interaction attention/ability; awareness of the swallowing problem; awareness of secretion; ability to manipulate secretions; postural control; fatigability; anatomy and oral, pharyngeal and laryngeal physiology; orofacial tonus; oral apraxia; orofacial sensitivity; gag pharyngeal contraction; saliva swallowing; cough and hawk; swallowing apraxia; oral residue; delayed swallowing reflex; reduction in laryngeal elevation; wet voice; and multiple swallowing. A total of 21 signs and symptoms were evaluated as present or absent. At the end of the objective and clinical evaluation, the intake of food was scored according to Functional Oral Intake Scale (FOIS). This scale scores the level of oral food intake of patients at specific levels, from 0 (restricted to alternative food pathway) to 7 (oral total intake with no restrictions), with the aim of monitoring the patients' evolution during the therapeutic process. This valid and reliable instrument has a coefficient of inter-rater reliability from 0.98 to 0.99, with Kappa coefficient average values between 0.86 and 0.91, with appropriate consensual validity (Kendall 0,90 agreement) and criterion validity (based on The Mann Assessment test of Swallowing Ability) (Crary, Mann, &

Groher, 2005). A translated and validated version for Brazilian Portuguese was used (Furkim & Sacco,2008).

The questionnaire Quality of Life in Swallowing Disorders (SWAL-QOL) was applied, in order to verify the symptoms presented by the patients, as well as their influence on quality of life. This instrument has Alpha Cronbach coefficient higher than 0.80, except in one domain. Thus, it presents excellent internal consistency and short-term reproducibility. It is a sensitive scale to differentiate oropharyngeal dysphagia degrees of severity (McHorney et al., 2002). The version translated and validated for Brazilian Portuguese was used (Portas, 2009). All questionnaires were applied in a waiting room. The questions and possible answers were read by the researcher for all patients. The questionnaires application was performed individually, for each patient.

Intervention

Individuals who agreed to participate in this study were divided, through convenience sampling process, into three groups: experimental group (EG), control group (CG) and placebo group (PG).

Experimental group (EG): the individuals participated in a phonoaudiological intervention program consisting of four weekly individual sessions of 30 minutes. In these sessions, it was performed the training of Chin-down postural maneuver with saliva and water. The participants were trained to perform the maneuver twice a day, swallowing saliva, and during meals, throughout the week, at home. The participants received a form, so they recorded the number of times they performed the maneuver at home. It allowed the control of adherence, being reinforced at each session the importance of adherence to treatment. Besides, the subjects received instructions regarding feeding (Annex 1). All the instructions, as well as the explanation about the maneuver were submitted to the patients through a written document.

Control Group (CG): the participants underwent evaluation of swallowing and the same assessment was repeated after four weeks, without any intervention during that period.

Placebo Group (PG): the individuals participated in a phonoaudiological intervention program which consisted of four individual sessions a week, with 30 minutes. In these sessions, the instructions about feeding were performed. The individuals received all the instructions on a written document (Annex 1). In the sessions, it was verified doubts about the

instructions and treatment adherence. In this group, it was not applied the Chin-down postural maneuver.

The EG and PG interventions were applied by the same researcher, previously trained. After the end of the research, it was offered to the CG and PG individuals the same phonoaudiological intervention performed to the GE.

Statistical analysis

Statistical analysis was performed through the Statistical Package for Social Sciences (SPSS), version 20.0. For the primary outcome analysis, it was used the Shapiro Wilk normality test, the Student's t-test (clinical evaluation of swallowing variable), the Generalized Estimaging Equations (GEE) (SWALQOL variable). Data from the FEES variable did not allow inferential statistical analysis. The Spearman correlation test was used, with separate groups, to check the correlation between the demographic and clinical variables of the three groups and the clinical evaluation of the swallowing variable. The regression test and the Pearson correlation test were applied to check the influence of the BDI and the PDQ variables in the swallowing clinical evaluation. To verify the groups similarities in the pre-intervention evaluation, it was performed the Shapiro Wilk normality test. Next, to the normal variables (age, MOCA, PDQ and BDI), it was applied the ANOVA. For the non-normal variables (disease duration, education, H&Y stages), it was applied the Kruskal-Wallis test for independent samples. For all tests, it was provided 5% of error.

Results

Flow of participants

The selection process of the participants consisted of 4 steps as it is shown in figure 1.

Baseline data

The sociodemographic and clinical profile of this study's participants are described in Table 1.

Effects of the intervention program

The results of the clinical swallowing evaluation showed that only the experimental group (EG) presented significant improvements (Table 2). In the analysis, it is observed a

significant interaction between time and group to solid ($p < 0.001$) and liquid ($p = 0.022$) consistencies, in the EG clinical swallowing evaluation.

The objective swallowing examination revealed that one (10%) EG subject presented aspiration in the pretest, so, the subject remained in the retest. Laryngeal penetration was observed in only two (20%) EG subjects in the pre-test and retest. Food stasis in vallecula and/or pyriform sinuses were observed in the pre-test in four (40%) EG subjects, in four (50%) CG subjects, and in three (50%) PG subjects and the retest in six (60 %) EG subjects, in four (50%) CG subjects, and in five (83.33%) PG subjects.

For the correlation between clinical evaluation of swallowing with demographic and clinical variables, it was observed inverse correlation between disease time and H & Y with the assessment in solid and liquid consistencies, in the CG. The correlation between the swallowing clinical evaluation and the total score revealed that the EG subjects presented lower BDI scores, and, therefore, were less depressed and presented greater improvements in the clinical evaluation with the liquid consistency (Table 3).

Regarding quality of life, there was significant difference between time in the communication domains and sleep, with improvements in the comparison before and after the practice. In relation to the groups, there was significant difference in all domains, the EG presented higher scores in the domains feeding time, communication, fear of food, sleep and fatigue; the CG presented higher scores in the fields of food selection, mental and social health; and the PG presented higher scores in the domains swallowing as a burden, desire to eat and frequency of symptoms. In relation to time*group interaction, there was significant difference in the domains frequency of symptoms and mental health (Table 4).

Discussion

Based on the previous information, it is verified the effectiveness of the Chin-Down postural maneuver to swallowing performance and self-perception in the studied sample, as a simple and inexpensive PD dysphagia therapy. The results show that the use of only one strategy can be interesting to minimize the unclear effects that therapy with many strategies can present. This intervention demonstrated benefits, even in a short period of time.

Cognitive ability, depression and quality of life did not influence this process. These treatment improvements were evidenced through the significant changes in the EG participants swallowing pattern, in their signs and symptoms observed in the clinical

swallowing evaluation, as well as improvements in self-perception of QOL after intervention, observed through SWALQOL.

In literature, there is heterogeneity in relation the studies on phonoaudiologic intervention in dysphagia regarding PD. Only three studies (Manor, Mootanah, Freud, Giladi, & Cohen, 2013; Troche et al., 2010; Luchesi, Kitamura, & Mourão, 2013) found improvements in swallowing after phonoaudiological therapy. These changes have been demonstrated through better scores in FOIS scale and Penetration-Aspiration scale. The observed studies differ from others because they analyzed a larger sample and they used a different type of intervention. These findings corroborate the present sample, with similar age and H & Y, with difference in the number of participants (higher in the literature) and disease time (lower in the literature). Except in the study by Luchesi et.al. (2013), the others presented the same number of sessions as the present study

Furthermore, there are five studies (Felix, Corrêa, & Soares, 2008; Baijens et al., 2012; Argolo, Sampaio, Pinho, Melo, & N´obrega, 2013; Athukorala, Jones, Sella, & Huckabee, 2014; Luchesi, Kitamura, & Mourão, 2015) in literature in which phonoaudiological interventions led to improvements of some participants' swallowing parameters, but with global function changes. In these studies, the sample was smaller than in the aforementioned studies, as well as in this sample, with mean age ranging from 59.2 to 70.2 years, disease time from 6.6 to 11.5 years and number sessions over 10.

In addition to the motor symptoms of PD, there is high prevalence of non-motor symptoms, such as cognitive decline, loss of facial expression, micrograph, and sleep disorders[35]. Thus, clinical studies on phonoaudiological rehabilitation in this population need to check the influence of these symptoms in the therapeutic process. Among these symptoms, it is highlighted the cognitive decline, which has a prevalence from 25% to 38.2% in early stages of PD (Kandiah et al., 2014; Varalta et al., 2015) and it may result in significant rehabilitation impacts. Therefore, it is criticized the lack of cognitive data associated with therapeutic improvements, described in the literature (Manor, Mootanah, Freud, Giladi, & Cohen, 2013; Troche et al., 2010; Luchesi, Kitamura, & Mourão, 2013).

Swallowing treatment in a neurodegenerative disease seeks functionality of safe swallowing and maintenance of nutritional status and respiratory conditions. According to the literature (Logemann, 1993; Logemann, 2006; Logemann et al., 2008; Robbins et al., 2008), the choice of introducing a therapeutic strategy must follow the order: first, postural techniques; then, oral sensitivity improvements techniques; next, swallowing maneuvers; and,

finally, change of food consistency. This order is based on the easiest way patients learn, and it aims at delaying the food consistency change, which, in many cases, will not be reversed. Thus, the Chin-down postural maneuver was chosen based on previous studies which have shown that it is among the two most recommended maneuvers in the therapeutic process for individuals with PD and based on its effectiveness to prevent aspiration pneumonia in patients with PD, when combined with liquid thickening (Logemann et al., 2008; Robbins et al., 2008Luchesi, Kitamura, & Mourão, 2013; Luchesi, Kitamura, & Mourão, 2015).

In addition, this strategy aims at improving the protection of the airways, reducing the possibility of penetration in the larynx or aspiration, being frequently recommended for thin liquids swallowing, in order to reduce early escape and possible entry in the air pathway (Luchesi, Kitamura, & Mourão, 2013; Luchesi, Kitamura, & Mourão, 2015). Added to these aspects, according to a larger study (Logemann et al., 2008), patients who received phonoaudiological therapy for oropharyngeal dysphagia in PD, up to this moment, confirmed that the chin-down posture is easier or more pleasant, compared to the other used therapeutic strategies.

The therapeutic process involves changing habits and new learning. The postural maneuver performance involves learning the proper movement for its implementation, as well as inhibition of an automatic behavior for the implementation of a new way of swallowing. Thus, the individuals go through a learning process, which causes changes in structures and functioning of their neural cells and connections (Rozenfeld, Farina, Steibel, Teixeira, & Yassuda, 2013). The consolidation of a new learning process depends on the plasticity of the central nervous system, which occurs in three stages: development, learning, and after lesional processes, translated into the nervous system attempt to form new connections and/or recovery of lost connections (Rozenfeld, Farina, Steibel, Teixeira, & Yassuda, 2013). Thus, the lack of changes in the swallowing pattern, in an objective examination of the EG participants, may be result of the short therapy time, which did not allow the whole knowledge consolidation.

Study limitations

The findings generalization is limited, because the changes occur only from the clinical judgment. Although it has been observed significant changes in the objective evaluation of swallowing, the results expressed impacts on participants' swallowing performance and self-perception, as evidenced by the EG QV improvements.

In addition, the absence of changes in the FEES evaluated parameters must be analyzed with caution. It raises the hypothesis that this is a short intervention period for improvements in these parameters, and the FEES evaluates a unique feeding moment, with small food quantities and in an unusual manner to the patient. On the other hand, the clinical evaluation performed according to the demand allows a swallowing evaluation in an ecological situation. In addition, a high number of patients felt uncomfortable when they performed the FEES, which may negatively influence the findings.

Furthermore, the small sample is a limiting aspect of the findings, and it may have affected the results. However, these findings may support larger and randomized studies in order to ensure the effectiveness of the Chin-down postural maneuver for swallowing dynamics, quality of life and swallowing difficulties in PD.

Conclusion

Considering the previous information, the research found that the chin-down posture maneuver improved the swallowing performance and self-perception, but not the laryngeal signs. So, it is not possible to claim that this intervention is effective, but it may help and, perhaps, with more intervention time or association with other techniques the dysphagia in PD may improve even more.

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Tables and figures in the following order in article

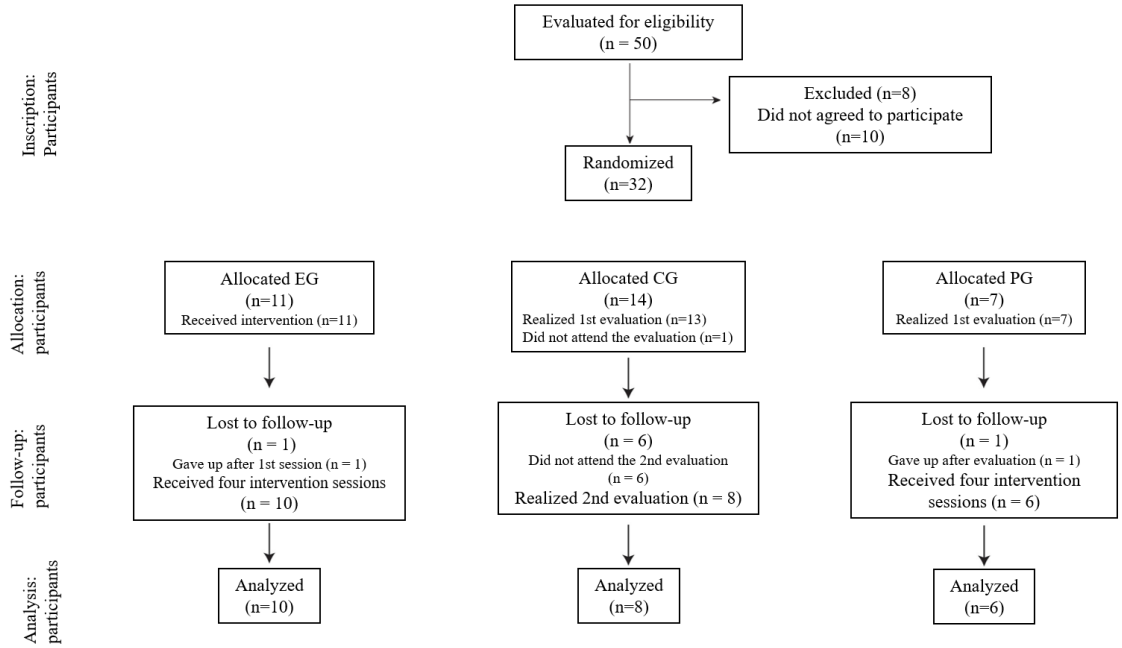

Figure 1: Flowchart of data collection

Table 1: Socio-demographic and clinical data

Groups	Experimental (GE) n=10	Control (GC) n=8	Placebo (GP) n=6	p-value
Age*	62,0 (±11,5)	62,8 (±6,2)	64,5 (±5,6)	0,694[a]
Schooling*	5,9 (±4,1)	10,3(±8,4)	12,0 (±9,1)	0,142[b]
Time of disease *	10,7 (±4,7)	11,8 (±8,0)	8,8 (±6,0)	0,524 [b]
H&Y*	2,8(±0,8)	2,5 (±0,7)	2,5(±0,8)	0,363 [b]
MEEM*	26,6 (±3,8)	25,6(±3,7)	25,3 (±4,1)	0,702 [b]
MOCA*	21,9 (±4,9)	20,5(±7,7)	21,2 (±8,4)	0,834 [a]
PDQ-39*	41,4 (±13,8)	38,7 (±16,7)	36,5 (±17,1)	0,704 [a]
BDI*	13,8 (±7,7)	17,1 (±9,2)	14,7 (±9,3)	0,523 [a]
FOIS*	5,9 (±1,3)	6,8 (±0,5)	6,8 (±0,4)	--
Male gender	80%	75%	66,70%	--

A: ANOVA; b: Kruskaç-Wallis test; *: Representation of the data as mean and standard deviation; H & Y: Hoehn & Yahr Scale; MMSE: Mini-Mental State Examination; MOCA: Montreal Cognitive Assessment; PDQ-39: Parkinson's Disease Questionnaire-39; BDI: Beck Depression Inventory; FOIS:Functional Oral Intake Scale.

Table 2: Correlation between pre and post of clinical evaluation of swallowing

Groups	Solid			Liquid		
	Pre	Post	P	Pre	Post	p
	Mean (PD)	Mean (PD)		Mean (PD)	Mean (PD)	
Experimental (EG)	4,56 (±0,631)	2,40 (±0,290)	0,002*	3,33 (±0,609)	1,56 (±0,388)	0,01*
Control (CG)	4,88 (±1,007)	3,00 (±0,354)	0,083	2,13 (±0,874)	1,13 (±0,482)	0,26
Placebo (GP)	2,67 (±0,304)	3,17 (±0,495)	0,33	0,50 (±0,312)	0,83 (±0,281)	0,39

Student's t-test; PD: standard deviation; p: p-value; * p <0.005

Table 3: Correlation between clinical evaluation of swallowing and demographic and clinical variables

Variables	Experimental (EG)				Control (CG)				Placebo (PG)			
	Solid		Liquid		Solid		Liquid		Solid		Liquid	
	r	p	r	p	r	p	r	p	r	p	r	p
Age	0,625	0,072	0,013	0,973	-0,193	0,647	-0,254	0,544	0,206	0,695	-0,152	0,774
Time of disease	-0,195	0,616	-0,427	0,252	-0,436	0,280	-0,708	0,049*	0,015	0,978	0,062	0,908
Schooling	-0,167	0,668	0,238	0,537	-0,006	0,989	0,249	0,552	0,119	0,822	0,246	0,638
MOCA	-0,634	0,091	-0,317	0,444	-0,253	0,545	-0,317	0,444	0,324	0,531	0,455	0,364
H&Y	0,095	0,807	0,12	0,759	-0,724	0,042*	-0,742	0,035*	-0,127	0,810	-0,033	0,951

Delta pre clinical evaluation and post; Spearman correlation; r: correlation coefficient; p: p-value; * p <0.005; H & Y: Hoehn & Yahr Scale; MMSE: Mini-Mental State Examination; MOCA: Montreal Cognitive Assessment; FOIS: Functional Oral Intake Scale

Table 4: SWALQOLL analysis pre and post intervention

Period	Mean (standard deviation) Experimental (EG)		Control (CG)		Placebo (PG)		Period		p-value time	group	time*group
1. Swallowing as a burden											
Pre	71,5	9,4	98,2	6,8	89,3	8,0	86,4	5,7	0,384	<0,001*	0,279
Post	60,4	13,8	85,7	9,9	95,6	8,4	80,6	8,1			
Group	66,0	6,5	92,0	5,6	92,5	7,5					
2. Desire to eat											
Pre	68,2	7,0	91,2	7,6	82,3	7,9	80,6	6,9	0,669	<0,001*	0,306
Post	71,5	7,9	81,8	7,7	92,0	9,3	81,8	7,0			
Group	69,9	7,0	86,5	7,0	87,2	7,0					
3. Eating duration											
Pre	66,4	11,2	26,5	9	24,7	10,6	39,2	10	0,815	<0,001*	0,812
Post	72,6	10,6	25	10,2	24,7	15,4	40,8	9			
Group	69,5	9,3	25,7	9,3	24,7	10					
4. Frequency of symptoms											
Pre	63,5	3,6	72,4	3,7	72,2	4,1	69,4	4	0,063	<0,001*	0,029*
Post	73,3	4,3	71,6	4	75,7	5,6	73,5	4			
Group	68,4	3,7	72	3,7	74	3,6					
5. Food selection											
Pre	74,2	7,8	87,6	3,9	85,5	5,1	82,4	4	0,529	<0,001*	0,539
Post	86,8	8,7	89,1	4,5	81,3	5	85,8	5			
Group	80,5	3,6	88,4	2,9	83,4	4,4					
6. Communication											
Pre	47,3	4,4	45,6	6,2	45,3	5,5	46,1	5	0,015*	<0,001*	0,713
Post	57,9	7	50,3	6,1	57,8	6,9	55,4	6			
Group	52,6	5,9	48	4,5	51,6	5,9					
7. Fear to eat											
Pre	72,5	5,3	71,6	4,6	73,2	5,4	72,4	5	0,169	<0,001*	0,662
Post	80,9	6,6	73,9	5	74,3	5,9	76,4	5			
Group	76,7	4,8	72,7	4,5	73,8	5,3					
8. Mental health											
Pre	74	6,7	87,8	7,6	92,1	6,2	84,6	6	0,586	<0,001*	0,004*
Post	70,9	9,6	90,3	5,7	82,9	12,3	81,4	8			
Group	72,4	6,4	89	5,8	87,5	8,9					
9. Social function											
Pre	76,1	5,7	86,7	5,1	88,8	4,7	83,9	5	0,945	<0,001*	0,425
Post	83,4	7,1	88,6	4,6	80,5	8,6	84,1	5			
Group	79,7	4,9	87,6	4,6	84,6	5,4					
10. Sleep											
Pre	50,9	11,4	15,5	11	25,1	10,2	30,5	10	0,045	<0,001*	0,093
Post	65,9	11,4	26,4	10,2	18,9	11,2	37,1	11			
Group	58,4	10,3	21	10,3	22	10,3					
11. Fatigue											
Pre	65,7	7,5	51,4	7,7	60,4	4,8	59,2	5	0,174	<0,001*	0,298
Post	81,4	5	58,7	4,2	56,2	10	65,4	4			
Group	73,6	5,2	55,1	4,9	58,3	5,8					
Total											
Pre	63,9	3,5	67,5	4,1	68,9	3,1	66,8	3	0,062	0,57	0,288
Post	72,2	4,7	69,3	3,2	69,6	4,3	70,4	4			
Group	68,1	3,6	68,4	3,5	69,3	3,3					

Statistical test: GEE; * p <0.005; SWAL QOL: Quality of Life in Swallowing Disorders Questionnaire

Table 5: Correlation between BDI and PDQ with clinical evaluation of swallowing and SWALQOL

Variables	Experimental group (EG)		Control Group (CG)		Placebo group (GP)	
	BDI					
	r	p	r	p	r	p
Clinical evaluation - solid	-0,236	0,574	0,361	0,379	0,471	0,346
Clinical evaluation-liquid	-0,542	0,165	0,152	0,719	0,577	0,231
SWALQOL - total dominance	0,427	0,252	-0,643	0,086	0,600	0,208
	PDQ-39					
Clinical evaluation - solid	0,165	0,696	0,410	0,313	0,324	0,531
Clinical evaluation-liquid	-0,076	0,858	0,292	0,483	0,577	0,231
SWALQOL - total dominance	0,417	0,265	-0,214	0,610	0,714	0,111

Spearman correlation; r: correlation coefficient of Pearson / Spearman; p: p-value; BDI: Beck Depression Inventory; PDQ-39: Parkinson's Disease Questionnaire-39; SWALQOL: Quality of Life in Swallowing Disorders Questionnaire

Annex 1: phonoaudiological guidelines

PHONOAUDIOLOGICAL GUIDELINES

Environment during feeding time:

- Do the meals in a quiet location.
- Keep off television, radio or any other device that can distract you.
- Keep your attention to the food.
- Do not talk during feeding.
- Avoid making meals at times when you are sleepy or tired.
- Try to make meals when in the ON period of medication.

Posture during feeding

- Sit next to the table.
- Keep your torso upright and your head up.
- Avoid lying down right after the end of the meal.
- Put small portions of food in the mouth.
- Try chew the food well and many times before swallowing.
- Swallow more than once, until you are sure there is no residue in the mouth.
- If you have the sensation of food "stuck in the throat" swallow more your saliva.

Meal time:

- Maximum time of a main meal (breakfast, lunch and dinner) is 30 minutes;
- Do not eat in a hurry.

Oral hygiene:

- Don't forget to brush our tooth after meals.
- Remember to brush your tongue.
- If you use dental prosthesis, it should be removed and cleaned with toothbrushing after every meal, and the tongue should be brushed.
- In patients that do not have teeth, cleaning the mouth should be done with brushing of the tongue and the remaining with gauze soaked with water and mouthwash.

5.2 Artigo 2 - The impact of dysphagia therapy on quality of life in patients with Parkinson's Disease as measured by the Swallowing Quality of Life Questionnaire (SWALQOL)

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ABSTRACT

Introduction: Dysphagia has been associated with poor quality of life (QoL), anxiety, depression and prevents sharing moments of meals with family and friends. The aim of this study was to evaluate the quality of life in individuals with Parkinson's disease (PD) before and after phonoaudiological therapy.

Methods: The program consisted of four one-on-one 30-minutes therapy sessions. Each session comprised guidance on feeding and postural maneuvers (chin down). The Quality of Life in Swallowing Disorders (SWAL-QOL) questionnaire was applied before and after therapy.

Results: The sample comprised 10 individuals (8 male), with a mean (SD) age of 62.2 (11.3) years, mean educational attainment of 7.5 (4.3) years, and mean disease duration of 10.7 (4.7) years. 30% of patients were Hoehn and Yahr (H&Y) stage 2, 50% were H&Y stage 3, and 20% were H&Y stage 4. Mean scores for all SWAL-QOL domains increased after the intervention period, with significant pre- to post-therapy differences in total score ($p=0.033$) and domain 4 (symptom frequency) ($p=0.025$). There was also a trend toward significance for domain 5 (food selection) ($p=0.95$).

Conclusion: Patients exhibited improvement in swallowing-related quality of life after a phonoaudiologic therapy program. The earlier in the course of PD, greater the improvement observed after therapy.

Keywords: Parkinson disease; quality of life; deglutition disorders; dysphagia; rehabilitation

INTRODUCTION

Dysphagia is a common symptom in Parkinson's disease (PD), and may occur at any stage in the disease course. It is estimated that up to 80% of patients with early-stage PD experience oropharyngeal dysphagia. At advanced stages, the incidence may be as high as 95%[1,2,3,4]. The main signs and symptoms of dysphagia in PD are: delayed oral transit; difficulties in bolus formation; residual food in the oral cavity; poor bolus ejection; multiple swallows; posterior loss of bolus; decreased swallowing reflex; alterations in vocal fold closure; reduced pharyngeal and esophageal motility; pharyngeal stasis; esophageal sphincter dysfunction; gastroesophageal reflux; laryngeal penetration; and pulmonary aspiration; oropharyngeal bradykinesia, incoordination, reduced anterior hyoid bone movement, and decreased epiglottic rotation angle during swallowing[5,6,7].Furthermore, studies show that pneumonia is the leading cause of death in patients with PD, demonstrating the importance of SLP-based intervention for dysphagia in order to delay the onset of this symptom[8,9].

Within this context, a growing number of studies have sought to assess the efficacy and efficiency of therapeutic interventions made by SLP for this signs and symptom of dysphagia in PD, as described above[5,10,11,12]. These studies have demonstrated the benefits of several treatment strategies, including food consistency modification, thermal–tactile stimulation, and expiratory muscle strength training (EMST), in mitigating signs and symptoms of dysphagia and improving swallow safety in patients with PD[5,10,11,12].

According to literature[6,13,14], patients with PD scored lower in the SWAL-QOL survey, suggesting poor QoL. Furthermore, patients with more advanced disease scored lower on the questionnaire. Thus, dysphagia has been associated with poor quality of life (QoL), anxiety, depression and prevents sharing moments of meals with family and friends.

According to literature revised, it was observed absence of national studies in order to ascertain the impact on QoL of SLP-based intervention. Within this context, the present study sought to assess QoL in patients with PD before and after a speech-language pathologist-led dysphagia therapy program.

METHODS

This paper is a case-control study with subjects with Parkinson's Disease. Participants were selected from the Movement Disorders Center at a hospital of reference. The study was

approved by the Research Ethics Committee, number 140263. All subjects signed a informed consent.

The inclusion criteria were: a confirmed diagnosis of PD and willingness to take part of a therapy program involving one session a week, during four consecutive weeks. The exclusion criteria were patients with language and/or hearing impairments that would prevent comprehension of the intervention program and patients with dementia.

Before and after therapy, patients underwent assessments which included application of the SWAL-QOL tool. This questionnaire comprises 44 items that assess 11 domains (Burden; Eating desire; Eating duration; Symptom frequency; Food selection; Communication; Fear; Mental health; Social; Sleep; and Fatigue), which are scored on a scale of 0 to 100. It is designed to ascertain the symptoms experienced by patients and the influence of these symptoms on QoL. The SWAL-QOL is an important tool for monitoring the efficacy of rehabilitation from the patient's point of view by assessing swallowing-related QoL. The Brazilian Portuguese validated version of the questionnaire was the one used[15].

The questionnaire was administered in an examining room and had an average duration of 20 min. Items and answer alternatives were read aloud by the investigator to each patient, in order to minimize the effect of low education and the decrease in visual acuity thus ensuring a proper understanding of the questionnaire, minimizing misleading answers due to the lack of understanding of the questionnaire. In order to avoid possible bias this procedure was carried out with all individuals. Data collection took place from March to August 2014.

Patients took part in a SLP intervention program, which consisted of four 30-minutes, one-on-one intervention sessions, during which patients received guidance on feeding (Box 1) and a postural maneuver (chin down). The chin-down posture maneuver follows the recommendations in the literature due to be easy to learn for the patient, as well as its aim of reducing the early escape and possible food intake in the airway[16,17,18].

For statistical analysis, the Shapiro-Wilks test was conducted to verify normality of the variables. The Wilcoxon test was used to compare mean scores for each SWAL-QOL domain before and after therapy (variables without normal distribution) The paired-samples Student *t*-test was used for comparison of total SWAL-QOL scores before and after therapy (variables with normal distribution). Spearman correlation coefficients were used to correlate pre- and post-therapy differences in each SWAL-QOL domain with the variables age, Hoehn and Yahr (H&Y) stage, and educational level (variables without normal distribution). Mann-Whitney Test was used to correlate pre- and post-therapy differences in each SWAL-QOL

domain with the variable gender. Analysis of covariance was used for analysis of total SWAL-QOL scores in relation to the variables gender, age, and H&Y stage. A 5% error rate was assumed for all tests. All analyses were carried out in SPSS 20.0.

RESULTS

The study sample comprised 11 patients with PD. However, one patient was excluded for failure to take part in all study sessions. The final sample comprised 10 participants. Of these, 80% were male. The mean (SD) age was 62.2 (±11.3) years, the mean educational level was 7.5 (4.3) years, and the mean disease duration was 10.7 (4.7) years. Regarding disease stage, three patients (30%) were H&Y stage 2; five patients (50%) were H&Y 3; and two patients (20%) were H&Y 4.

Table 1 shows comparisons of scores for each SWAL-QOL domain before and after the therapy intervention. The mean of all SWAL-QOL domains increased after the SLP intervention period. However, the difference was only significant for the Symptom Frequency domain ($p= 0.025$ and $r=-2.24$). In addition, a significant difference in total scores was observed after therapy ($p=0.033$).

The mean scores for each SWAL-QOL domain before and after therapy were then tested for correlation with the variables gender, H&Y stage, age and educational level, as shown in Table 2. A significant correlation of domain Sleep was observed with gender ($p=0.047$) and H&Y stage ($p=0.024$ and $r=-0.74$). Furthermore, domain Food selection correlated significantly with H&Y stage ($p=0.051$ and $r=0.66$). In this way, earlier in the course of PD, better the improvement experienced in QoL after therapy

In the assessment of swallowing, as regards the signs and symptoms of dysphagia, there was a significant reduction after SLP therapy for both consistency, solid ($p <0.001$) and liquid ($p = 0.022$).

DISCUSSION

Although the literature[1,2] points to the high incidence of dysphagia in patients with PD[1,2], the influence of dysphagia as a leading cause of death in PD [8,9], the silent aspiration wich reduce complains[19], and its negative impact in QoL[13,20], there are still great difficulties in conducting studies with rehabilitation. This is due to absence of complaint of patients[17],

and the difficulties of movement in patients with PD, caused by postural instability, a characteristic symptom of PD. These factors mean that few patients agree to participate in this type of study, decreasing adherence to the therapeutic process. In addition, SLP therapy is a continuous process, which can be impaired due to clinical fluctuations of the patient, such as worsening of motor symptoms.

Thus, few studies have investigated the influence of therapy on swallowing-related QoL. It was found in the literature review for this article only three such studies[6,10,14], all of which reported QoL and clinical improvement after SLP intervention, regardless of the therapeutic technique used and the number of sessions.

Data analysis showed that average scores for all SWAL-QOL domains improved after the intervention period. However, this difference was only significant for the Symptom Frequency domain, providing evidence of a positive modification in QoL regarding the frequency of symptoms. These findings corroborate with the literature[6,14].In addition, there is a positive change in the complaints, due to reduction in the frequency of symptoms presented by the patients. Corroborating with Argolo et.al.[6], which found significant improvement in scores of areas Fear and Frequency of Symptoms.

In this study it was verified that QOL related with swallowing was moderate in the first assessment before the therapeutic program, showing that dysphagia had a negative effect on patient QoL. According with Plowman-Prine et al.[20] study, with 36 patients with and without dysphagia, with a mean age of 65.6 years (± 10.8) and disease duration 11.57 years (± .5), similar to our findings, patients with PD assessed by means of the SWAL-QOL exhibited moderate swallow-related QoL. In addition, dysphagia had a negative impact on patient QoL; total scores in the dysphagia group were lower than in the non-dysphagia group.

Regarding swallowing-related complaints, the study found positive impacts on QoL regardless of age, educational level, or H&Y score; disease stage was the only variable to interfere with QoL. This corroborates with the existing literature[6], which reports a reduction in swallow-related complaints after SLP intervention. However, it is known that in both studies the sample can be a limiting factor, due the significantly small sample size of 10 patients in this study and 15 patients in the literature, the sample number limited in the present study due to the difficulty of conducting a study therapy in PD individuals

Thus, it is noted the importance of dysphagia therapy for this population, in order to reduce the complaints regarding swallowing and provide an improvement in QOL of these patients. It is verified that the therapeutic strategy used in both studies are distinguished, and

yet the results resembled each other. This finding suggests that SLP therapy regarding the increased attention given to the feeding problem by the patient, may be the deciding factor to the success of the therapeutic process. This is due to the fact that silent aspiration is a frequent clinical signs of dysphagia in patients with PD. It is known that the absence of the cough reflex limits the possibility of dysphagia identification, which can cause a decrease in the complaint and awareness of the problem by patients[21,22].

This finding demonstrates the importance of dysphagia therapy in this population, as a way of reducing swallowing-related complaints and improving QoL.

Our sample was predominantly composed by males, with mean age was 62.2 (±11.3) years, as in the previous studies of Plowman-Prine et al.[20] and Argolo et al.[6], in which the mean age was ±65.6 and ±59.2 years respectively. According to the literature men have a higher estimated risk of developing PD than women[23].

Although the intervention applied in the present study consisted of only four weekly sessions of therapy, versus five weekly sessions in the Argolo et al.[6] study and 13 to 15 sessions in the Heijen et al.[14] study, we observed similar outcomes in terms of QoL improvement. Therefore, it is suggested that the number of therapy sessions does not seem to be a factor of direct influence on the improvement of QOL in this population. Futhermore, in studies from Troche et.al.[10], Argolo et.al.[6] and Heijen et.al.[14], it was not used the same therapeutic strategy, and yet, it was found in all studies a improvement of QOL in the patients. Tis way, it also verifies the diversity of SLP treatment strategies for improvement of QOL related to swallowing, in individuals with PD.

CONCLUSION

Our results suggest that swallowing-related QoL improved after a SLP intervention. Earlier in the course of PD, better the improvement experienced after therapy. This demonstrates that early intervention is possibly associated with superior effects in terms of QoL improvement. We observed positive modifications in dysphagia-related complaints regardless of gender, age, educational attainment, and H&Y score. Disease stage was the only variable found to interfere with QoL.

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GUIDANCE PROVIDED

Feeding environment:

- Take your meals in a quiet place.
- Turn off the TV, radio, or any other devices that may distract you while you are eating.
- Focus on eating.
- Do not talk while eating.
- Avoid taking meals when you feel sleepy or very tired.
- Try to take your meals during your "on" time.

Posture while feeding:

- Sit close to the table.
- Remain upright and hold your head up.
- Avoid lying down just after finishing your meal.
- Take small bites of food into your mouth.
- Chew food thoroughly.
- Swallow more than once, until you are sure no food remains in your mouth.
- If you feel there is food "stuck in your throat", swallow saliva more often.

Meal duration:

- The maximum time for a major meal (breakfast, lunch, and dinner) should be 30 minutes;
- Do not rush through your meal.

Oral ***hygiene:***

- Brush teeth thoroughly after your meals.
- Remember to brush your tongue.
- If you wear dentures, remove them and brush them clean after every meal. Remember to brush your tongue as well.
- Edentulous patients should brush their tongue and clean the rest of the oral cavity with a water-soaked gauze dressing and antiseptic mouthwash.

Box 1: Guidance Provided

Table 1: SWAL-QOL Scores Before and Dysphagia Therapy

SWAL-QOL DOMAIN	PRE		POST		p	U^w
	Mean	SD	Mean	SD		
1. Burden	77.5	±14.44	82.5	±30.73	0.258	-1.131
2. Eating desire	79.15	±19.35	82.49	±24.67	0.527	-0,632
3. Eating duration	52.5	±39.87	58.75	±36.82	0.833	-0.211
4. Symptom frequency	69.61	±10.82	79.42	±14.97	0.025*	-2.244
5. Food selection	65	±26.87	86.25	±28.53	0.095	-1.667
6. Communication	42.5	±23.71	55	±31.84	0.103	-1.630
7. Fear	66.87	±25.69	76.87	±29.47	0.260	-1.127
8. Mental health	80.5	±22.04	84	±26.64	0.752	-0.315
9. Social	71	±28.06	83	±26.58	0.116	-1.572
10. Sleep	31.25	±38.75	46.25	±39.10	0.176	-1.355
11. Fatigue	70.8	±27.28	83.31	±17.58	0.123	-1.544
Total**	64.24	±29.65	74.34	±30.49	0.033*	0.672

Wilcoxon test; U^w: Wilcoxon test coefficient; p: p-value; *p≤0.05;**Paired-samples Student *t*-test

Table 2: Correlations of SWAL-QOL Domains with Gender, H&Y Stage, Age, and Educational Attainment

SWAL-QOL DOMAIN	GENDER[a]	H&Y		AGE		EDUCATION	
		p	r	p	r	p	r
1. Burden	0.506	0.203	0.469	1.0	0.000	0.772	0.106
2. Eating desire	0.224	0.792	0.103	0.627	-0.176	0.174	0.467
3. Eating duration	0.895	0.396	-0.323	0.407	-0.295	0.892	-0.050
4. Symptom frequency	0.433	0.646	-0.178	0.365	-0.321	0.464	0.262
5. Food selection	0.694	0.051*	0.665	0.542	0.220	0.331	0.344
6. Communication	0.143	0.807	-0.096	0.892	0.049	0.523	-0.230
7. Fear	0.147	0.560	-0.226	0.134	-0.508	0.086	0.569
8. Mental health	0.589	0.709	0.146	0.519	-0.232	0.089	0.565
9. Social	0.893	0.444	0.293	0.379	0.313	0.890	0.050
10. Sleep	0.047*	0.024*	-0.743	0.320	-0.351	0.993	0.003
11. Fatigue	0.147	0.773	0.113	0.324	-0.177	0.358	0.326
Total**	0.554	0.858	-	0.936	-	0.543	-

a= Mann-Whitney Test; Spearman correlation; p: p-value; r: Spearman correlation coefficient; *p≤0.05; **Analysis of covariance

6 Conclusão

Conforme os resultados do presente estudo verifica-se que a manobra postural Chin-Down melhorou a performance e autopercepção da deglutição na reabilitação fonoaudiológica de disfagia orofaríngea na DP, nesta amostra. Entretanto, não observou-se melhora nos sinais laríngeos. Desta forma, não é possível afirmar que esta intervenção é efetiva, mas que pode auxiliar e que talvez, com mais tempo de intervenção ou a associação com outras técnicas torne efetiva a melhora da disfagia.

A generalização destes achados é limitada pelo fato de ter-se verificado mudanças somente na avaliação clínica. Todavia, mesmo sem mudanças significativas na avaliação objetiva da deglutição os resultados mostrados tiveram grande impacto na funcionalidade da deglutição para os participantes, conforme evidenciado pela melhora na QV do GE.

Além disso, a ausência de mudança nos parâmetros avaliados no exame objetivo deve ser analisada com cautela. Levanta-se a hipótese de que seja um curto período de intervenção para obter-se melhora nesses parâmetros e de que a FEES avalia um único momento da alimentação, em pequenas quantidades e de forma não habitual do paciente. Ao passo que a avaliação clínica, realizada por livre demanda, permite uma avaliação da deglutição em uma situação ecológica. Além disso, um alto número de pacientes sentiu-se desconfortável ao realizar o exame o que pode influenciar negativamente nos achados.

Ademais, a pequena amostra nos grupos e a falta de cegamento dos avaliadores são aspectos limitadores dos achados, podendo estes ter interferido nos resultados.

Os resultados encontrados podem apoiar estudos maiores e randomizados com o intuito de garantir a eficácia da manobra postural Chin-down para a dinâmica da deglutição, qualidade de vida e queixas de deglutição na DP. Sendo esta uma estratégia terapêutica simples e de baixo custo para a disfagia.

Anexos

UNIVERSIDADE FEDERAL DE CIÊNCIAS DA SAÚDE DE PORTO ALEGRE

PARECER CONSUBSTANCIADO DO CEP

Elaborado pela Instituição Coparticipante

DADOS DO PROJETO DE PESQUISA

Título da Pesquisa: EFEITOS DE UM PROGRAMA DE INTERVENÇÃO FONOAUDIOLÓGICA EM INDÍVIDUOS COM DOENÇA DE PARKINSON

Pesquisador: MAIRA ROZENFELD OLCHIK

Área Temática:

Versão: 1

CAAE: 29560314.9.3001.5345

Instituição Proponente:

Patrocinador Principal: Hospital de Clínicas de Porto Alegre

DADOS DO PARECER

Número do Parecer: 882.352

Data da Relatoria: 19/11/2014

Apresentação do Projeto:

A Doença de Parkinson (DP) é uma doença degenerativa e progressiva do Sistema Nervoso Central, na qual há uma perda neuronal progressiva no grupo de células ventrolaterais da parte compacta da substância negra do mesencéfalo. É clinicamente definida pela presença de sinais motores, tais como, bradisineia, rigidez, instabilidade postural e tremor de repouso. Pacientes com DP frequentemente apresentam uma série de sintomas motores secundários, tais como disfagia, disartria, sialorréia. Aproximadamente 90% dos pacientes com DP apresentam alterações de deglutição, voz e fala. Na DP a dificuldade de deglutição dos alimentos ocorre por incapacidade na realização rápida e coordenada dos movimentos necessários para o ato de deglutir. Em razão da rigidez muscular e bradicinesia na execução dos movimentos necessários para a deglutição e mobilidade reduzida das estruturas orofaríngeas há acumulo de alimento ou saliva em recessos faríngeos o que favorece episódios de penetração laríngea e de aspiração traqueal após a deglutição. Objetivo: Verificar a melhora terapêutica após programa de intervenção fonoaudiológica em alterações de deglutição em indivíduos com Doença de Parkinson. Material e Métodos: A população estudada constará de indivíduos, de ambos os sexos, que sejam atendidos no Ambulatório de Distúrbios do Movimento do HCPA, com confirmação de diagnóstico de DP. Os pacientes passarão por uma avaliação fonoaudiológica, individual. A qual será composta por uma

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avaliação clínica das funções de respiração, voz, fala, mastigação e deglutição, bem como avaliação das estruturas do sistema estomatognático. Além desta avaliação, todos os pacientes responderam o questionário Quality of Life in Swallowing Disorders - SWAL-QOL. Posteriormente a avaliação fonoaudiológica os pacientes realizarão o exame de videonasofibroscopia.

Após o término das avaliações os pacientes serão divididos aleatoriamente em três grupos: grupo A, o qual receberá orientações e intervenção fonoaudiológica; grupo B que receberá somente orientações; e grupo C, que não receberá nenhuma intervenção (controle). serão divididos em 3 grupos. Será realizada uma intervenção fonoaudiológica individualmente, uma vez por semana, com duração de 30 minutos cada, por um período de quatro sessões com os grupos A e B. Os pacientes receberão orientações relacionadas à DP e alimentação. Somente os pacientes do grupo A realizarão uma terapia breve e intensiva, composta por um conjunto de manobras padronizadas, normalmente utilizadas e com efeitos comprovados
sobre a função da musculatura oral. Neste período os participantes serão orientados a realizarem os exercícios em casa. Após o término das quatro sessões serão realizadas novamente todas as avaliações, a fim de se verificar o efeito do programa de intervenção nestes pacientes.Ao término da pesquisa será oferecido aos participantes do grupo B e C o mesmo período de intervenção do grupo A.

Objetivo da Pesquisa:

Objetivo Primário:

Verificar a melhora terapêutica após programa de intervenção fonoaudiológica em alterações de deglutição em indivíduos com Doença de Parkinson.

Objetivo Secundário:

Avaliar efeitos do programa de intervenção fonoaudiológica sobre as alterações de deglutição.Verificar melhora entre o grupo controle e o grupo experimental.Verificar os tipos de alterações de deglutição.Verificar relação entre melhora terapêutica e percepção do problema de deglutição.Correlacionar as alterações de deglutição com idade, sexo, condição clínica.

Avaliação dos Riscos e Benefícios:

Riscos: A terapia não ser suficiente para a melhora do paciente.

Benefícios: Melhora da função de deglutição.

Comentários e Considerações sobre a Pesquisa:

Pesquisa já aprovada no CEP-HCPA

Endereço: Rua Sarmento Leite ,245
Bairro: **CEP:** 90.050-170
UF: RS **Município:** PORTO ALEGRE
Telefone: (513)303 -8804 **E-mail:** cep@ufcspa.edu.br

Considerações sobre os Termos de apresentação obrigatória:

Apresentados

Recomendações:

Conclusões ou Pendências e Lista de Inadequações:

Sem pendências

Situação do Parecer:

Aprovado

Necessita Apreciação da CONEP:

Não

Considerações Finais a critério do CEP:

De acordo com o parecer do Relator.

PORTO ALEGRE, 24 de Novembro de 2014

Assinado por:
Julia Fernanda Semmelmann Pereira Lima
(Coordenador)

Endereço: Rua Sarmento Leite ,245
Bairro: **CEP:** 90.050-170
UF: RS **Município:** PORTO ALEGRE
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Instructions for Authors

Authors' Use and Presentation of Articles

ASHA recognizes the importance of authors' use of their work in furthering the scholarship and research. Although a copyright transfer is signed by authors at submission, authors should be aware that they retain many rights for noncommercial use of the material. Express permission for use is required only in circumstances stipulated on the copyright transfer form.

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Personal Websites and Institutional Repositories

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Presentation of the Work

Authors may present their accepted manuscripts orally in whole or in part and may use elements of the accepted manuscript as needed to support the presentation.

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Editor Transitions and Manuscripts in Process

Manuscripts that have not received a final decision at the time of an editor transition (this typically occurs on November 15 of the final year of an editor's term) will continue the peer review process under the same associate editor and reviewers wherever possible, to preserve consistency.

Corrections and Retractions

Corrections and Retractions

The following types of corrections are used by ASHA to help preserve the accuracy, reliability, and permanence of the scholarly record.

Erratum: A correction of any sort. ASHA has in the past made a distinction between a correction notice and an erratum. The former was for errors made by the production office but not of a substantive nature, and the latter was for substantive errors made by either the author or the production office. In keeping with guidelines from National Library of Medicine, this distinction is no longer made by ASHA. An error is an error, and its correction will take the form of an erratum regardless of its source or characteristics.

Retraction: Rejection or disavowal of published work because of fraud, plagiarism, ethical breaches, or other such scientific malfeasance, or because one's work is rendered invalid as a result of the malfeasance or misconduct of another author's work on which one's article is based. A retraction containing explanatory information is published and bidirectionally linked, and the original article online is clearly and permanently marked as having been retracted (e.g., by a watermark on each page).

Removal: Deletion of content from the scholarly record (extremely rare). Bibliographic information will remain a part of the scholarly record, but the actual article content will be removed in the event of a court order to do so; if there is a clear risk of legal liability to the author, publisher, or copyright holder or if the content poses a danger to the public.

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During submission of a manuscript, the author will be required to affirm that

- No material in the manuscript is the copyrighted work of another individual or organization. *OR*
- Any material that is the copyrighted work, or an adaptation of such work, of another individual or organization is clearly marked as such and that the author has obtained permission for its use in the manuscript in all forms (i.e., both print and electronic) and languages.

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Evidence of permission for direct re-use or adaptation—or formal notification that permission is not needed—must be uploaded along with your manuscript files upon submission. If a permissions issue is discovered after you submit your manuscript via ScholarOne Manuscripts, peer review will be delayed. If your manuscript is accepted, there will be production delays upon discovering a permissions issue.

If copyright infringement is discovered after publication, your article will be retracted immediately and you (and ASHA, as the publisher) may be subject to legal action by the infringed party.

Authors must affirm, at submission, that they recognize they will liable for any claims or penalties resulting from the unauthorized publication of copyrighted material.

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These guidelines are especially true for material that is part of an assessment/diagnostic instrument. Never include actual test items in your manuscript unless you have received explicit permission form the publisher to do so.

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Many publishers post their "fair use" policies. These indicate the extent of their content in any given article that can be used without permission. If no fair use policy can be found, assume that permission must be obtained.

Acceptance Criteria

The principal criteria for acceptance are significance of the topic or experimental question, conformity to rigorous standards of evidence and scholarship, and clarity of writing. ASHA membership is not a factor in selection. No manuscript that has been published (including in an electronic form) or is under consideration elsewhere may be submitted.

Reporting Standards

Reporting Standards

Clinical studies appearing in ASHA journals must meet recognized standards for designing and implementing their studies and reporting the findings:

- Articles reporting randomized clinical trials must follow the Consolidated Standards of Reporting Trials (CONSORT).
- Nonrandomized clinical evaluations must follow the Transparent Reporting of Evaluations with Nonrandomized Designs (TREND) statement.
- Studies of diagnostic accuracy must meet the Standards for Reporting of Diagnostic Accuracy (STARD).

Ethics

ASHA expects of its members high standards of ethical conduct in all professional activities. In addition to the ASHA Code of Ethics, ASHA has issued practice policy documents to clarify ethical issues related to research and scholarly activities. Authors, particularly those who are ASHA members, are encouraged to review these documents and apply them to their research and scholarly endeavors. In addition, the following policies and their associated resources apply to the publication of research in ASHA journals.

Ethics in Research and Scholarly Activity

Guidelines for the Responsible Conduct of Research: Ethics and the Publication Process
Protection of Humans in Research
All research to be submitted for publication in ASHA journals in which human participants are used must adhere to the basic ethical considerations for the protection of human participants in research. Where applicable by law or institutional affiliation, authors must provide assurance of approval by an appropriate institutional review board or equivalent review process. The basis for these considerations can be found in The Belmont Report: Ethical Principles and Guidelines for the Protection of Human Subjects (1979).

Protection of Animals in Research

All research to be submitted for publication in ASHA journals in which animal subjects are used must ensure that animals have been treated humanely with appropriate consideration of their comfort and health. Where applicable by law or institutional affiliation, authors must provide assurance of approval by an appropriate institutional animal care and use committee. The basis for these considerations can be found in the statement of the American Physiological Society regarding use and care of animals in research.

Ethics and Scientific Misconduct

If an editor suspects scientific misconduct, the editor will bring the concern to the Publications Board. If it is determined that the author is not an ASHA member or certificate holder, the editor will bring the concern to a research ethics screening subcommittee. This subcommittee will have as members the editor (who will serve as chair) and two members of the Publications Board, including one

with expertise in the content area of the manuscript in question. In addition, the ASHA Director of Publications will serve as an ex-officio member. The charge to the screening subcommittee will be to determine whether the concerns have substantive merit and whether the potential for scientific misconduct is apparent.

If the concern appears to have substance, the first author's home institution will be contacted by the ASHA Publications Board, and the institution's appropriate research integrity officer will be notified of the concerns. The adjudication of the case, then, will be left to the home institution.

In referring the concern to the home institution, the ASHA Publications Board will request that it be notified of the outcome of any investigation or adjudication. The Publications Board will then determine procedures for dealing with the manuscript in question (issues such as withdrawal, removal from the web site, corrections in the form of errata, etc.).

When the Author Is an ASHA Member

If an editor suspects scientific misconduct, the editor will bring the concern to the Publications Board. The Publications Board will file a formal complaint with the ASHA Board of Ethics.

If and when the case is resolved, the ASHA Board of Ethics will inform the Publications Board of the outcome. The Publications Board will determine procedures for dealing with the manuscript in question (issues such as withdrawal, removal from the Web site, corrections in the form of errata, etc.).

Conflicts of Interest

As part of the manuscript submission process, authors are required to disclose any real or potential conflicts of interest that could be seen as having an influence on the research (e.g., financial interests in a test or procedure, or funding by an equipment or materials manufacturer for efficacy research). Sources of outside support for research, including funding, equipment, and supplies, must be named during the submission process (and questions to that effect will be presented online to authors as part of the article submission process). In addition, authors must disclose any financial or other nonprofessional benefit(s) that might result from the publication of the manuscript and that reviewers or readers might consider to have affected the conduct or reporting of the work. If the author is uncertain about what might be considered a conflict of interest, he or she should err on the side of full disclosure by reporting the potential conflict when requested to do so during submission. Information about conflicts of interest may be made available to reviewers at the editor's discretion. The role(s) of the support organization, if any, in the collection of data, in its analysis and interpretation, and in the right to approve or disapprove publication of the finished manuscript also must be detailed during the submission process. If a support agency claims the right to approve/disapprove publication, the author should have completed this process by the time of manuscript submission. If, in the editor's judgment, the author has a real or potential conflict of interest, that conflict must be acknowledged with a disclosure statement on the first page of the article. Authors will be informed of this decision before acceptance.

before acceptance.

Confidentiality/Privileged Information

Manuscripts submitted to ASHA journals are privileged information. They are confidential and must not be discussed with anyone other than the journal editor and the assigned associate editor. After the final publication decision has been made, reviewers should destroy their copies of the manuscript.

Statistical Consultation

Occasionally, a reviewer must consult with colleagues on some aspect of a paper, such as the statistical analysis. Such consultations should occur only with the editor's or associate editor's permission and without providing the author's identity or details of the manuscript's content.

Mentoring Individual Doctoral Students

For the purpose of training PhD students in the peer review process, a manuscript reviewer/mentor may engage a PhD student in the review process under the mentor's guidance. (One student per mentor per paper.) The mentor bears full responsibility for the review. The PhD student will be bound by the same principles of confidentiality that govern the review process as a whole. It is the responsibility of the mentor to inform the journal editorial administrator, the Editor, and AE of the mentee's identity. The editorial administrator will enter the information into the manuscript administrative record. If a doctoral student conducts a written review, the mentor must append the review to his or her formal review and mark the appended review as having been done by a doctoral student.

Just Accepted and Newly Published

Manuscripts that were accepted for publication but not yet edited, formatted, and revised were released in the Just Accepted collection in the journal. They were indexed in MEDLINE and were available through searches in PubMed, Google, and other venues. Prepublication information, including the date, appeared on the PDF file of each manuscript in Just Accepted.

The format for citing these manuscripts is as follows:

Brockmann, M., Storck, C., Carding, P. N., & Drinnan, M. J. (in press). Voice loudness and gender effects on jitter and shimmer in healthy adults. Journal of Speech, Language, and Hearing Research. Retrieved from [URL].

Readers who want to respond to the content of a paper may do so using the traditional letter-to-the-editor process after final publication of the paper.

Upon being edited, formatted, and revised, manuscripts are then removed from Just Accepted and released as Newly Published articles. These are released in advance of placement in an issue, so they do not carry issue pagination. They are citable using an Advance Online Publication citation format. Upon release in an issue, these articles are removed from the Newly Published collection.

With the move to a continuous publication model and the steadily decreasing time from acceptance to publication, ASHA Journals has the opportunity to replace the Just Accepted portion of ASHAWire with a space to enhance engagement with ASHA members, researchers, and other CSD professionals through social media. To prepare for this workflow transition, manuscripts accepted late 2015 will skip Just Accepted posting and first appear on ASHAWire in the Newly Published queue (if not too close to the scheduled archival issue publication). Prior to Newly Published posting, even if page proofs have not yet been received, authors of accepted manuscripts can cite/reference their work as in press. ASHA Journals will release additional information about our platform upgrade, when it becomes available.

Open Access

Open Access for NIH-Funded Authors

What Is the NIH Public Access Policy?

The National Institutes of Health (NIH) has mandated, as of April 7, 2008, that authors who have received NIH funding for their research must make that research publicly accessible in PubMed Central, NIH's free digital archive of biomedical and life sciences journal literature.

For more background on the policy and the specific terms of the law requiring it, please review the information provided on NIH's Public Access Web site (http://publicaccess.nih.gov/).

ASHA Permits Full Compliance With the NIH Policy

Manuscripts accepted for publication before April 7, 2008, are not subject to the mandate that authors must deposit their NIH-funded manuscripts into PubMed Central. For any manuscripts accepted after that date, ASHA hereby assures NIH-funded authors that they have ASHA's full permission to comply with the NIH requirements, subject to the following conditions:

- Only the accepted manuscript may be deposited, not the copyedited and typeset final published article.
- When depositing an article, the author must stipulate that PubMed Central may release the manuscript for public access no sooner than 6 months after final online publication in the journal.
- Authors must include on the deposited manuscript a citation indicating where it will be published in its final form, including a link to the Web address of the journal in which it will be published.

ASHA's copyright transfer agreement has been revised to reflect current policy. Also, NIH is inviting further public comment. Refer back to this page for possible changes in the future.

How the PubMed Central Deposit Process Works

Although some publishers deposit articles to PubMed Central on behalf of authors, ASHA is at this time having authors make their

Although some publishers deposit articles to PubMed Central on behalf of authors, ASHA's at this time having authors make their own deposits. Important information is conveyed during the process, so authors are better served by making the deposit and receiving the information they will need for later use.

- When your manuscript is accepted for publication in an ASHA journal, you will be sent an e-mail from the ASHA peer review system. Included in this e-mail will be a reminder to NIH-funded authors to make their deposit to PubMed Central.
- Also included in the acceptance e-mail will be a link to the NIH Manuscript Submission System (http://www.nihms.nih.gov/) (NIHMS).
- Follow the instructions on the NIHMS site to deposit the accepted manuscript. If you are unclear on how to submit the manuscript, NIHMS offers many helpful slides and tutorials that will show you every step of the process, including how to enter ASHA's embargo period of 6 months.

Once you have submitted your manuscript, you will receive an NIHMS ID number. PubMed Central will then perform quality assurance checks and create a retrieval record for the manuscript. At that time, your PubMed Central ID (PMCID) number will be available.
As of May 25, 2008, you need to cite the PMCID or the NIHMS ID, or both, when citing your manuscript in NIH applications, proposals, or progress reports. Consult the NIH FAQ for more information.

Voluntary Open Access

As of January 1, 2009, ASHA journals have an Open Access Option for authors publishing in our journals. Any authors wishing to have their articles in the online version of the journal freely available to the world from the time of publication and forward, may pay a one-time only Open Access fee of $2,500 per article. If this manuscript is the result of an NIH-funded project, you should know that your work will be freely available on PubMed Central in 6 months from publication. Authors are advised to please inform ASHA Journals at manuscript submission of the intent to publish as voluntary open access (waiting until the article is in production is not recommended).

Previously Published Works/Republication of Works With Limited Circulation

Except in the case of Special Reports (see below), ASHA journals do not consider for review submissions that have been published in the same, or essentially the same, form elsewhere. Authors who are modifying or extending work that has previously been published must notify the editor of the possible previous publication of their submission and provide a rationale for considering the new work to be substantially different from the original. They must also clearly acknowledge these prior publications in their manuscript.

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In some unclear cases, a decision must be made to determine whether a manuscript represents original or duplicate work. This decision always rests with the editor of the ASHA journal, who may consult with the chair of ASHA's Publications Board as part of the decision process.

Editing

Once a paper has been accepted and forwarded to the Publication Office, the staff will edit further for style (in accordance with APA Publication Manual standards), clarity, and consistency, and will format for publication. Authors are sent page proofs for final proofreading. Only minimal alterations are permissible on page proofs. For additional guidance on editorial and production matters, particularly with regard to manuscript style/formatting and publication requirements, please consult the Manuscript Preparation and Submission (/SS/Manuscript_Submission.aspx) section of this site.

Translations

Non-English Articles

Although the Publications Board recognizes certain advantages in publishing select articles in languages other than English, such projects are time and cost prohibitive due to the amount of human and financial resources required to do them well. Consequently, the Publications Board policy is to publish articles in its four scholarly journals in English only.

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Translations of Articles Previously Published in Non-English Journals

ASHA journals typically do not consider manuscripts that have been published elsewhere. However, if an editor considers an article important enough, and also considers the original publication obscure enough that broad dissemination was not possible, an article can be republished in an ASHA journal. This has occurred very rarely, however. Such an article must clearly reference the original and include all necessary disclosures to indicate that the article is a republished translation; publication is, of course, also contingent on permission from the original authors and the copyright holder, for all uses (both print and online).

Bias-Free and Person-First Language

Bias-Free and Person-First Language

We at ASHA Journals follow the style guidelines set forth in the APA Publication Manual (6th ed.). As such, authors should be mindful of the importance of using language that is free of bias or the suggestion thereof. Per APA style, "Constructions that might imply bias against persons on the basis of gender, sexual orientation, racial or ethnic group, disability, or age are unacceptable" (p. 71). The use of person-first (vs. disability-first) language is not only preferable; it is necessary.

Authors who publish in ASHA journals should assume that their articles will be copyedited with these guidelines in mind. We realize that some attempts to follow these guidelines may result in wordiness or clumsy prose. Therefore, we ask authors to review these types of changes when first proofs are received. APA says, "As always, good judgment is required. If your writing reflects respect for your participants and your readers and if you write with appropriate specificity and precision, you will be contributing to the goal of accurate, unbiased communication" (p. 71).

There are many situations in which authors should be mindful of the language they use so as to avoid bias or the appearance of bias.

- Example 1: The use of "normal" to describe human beings is avoided because it suggests, incorrectly, that the other groups are somehow "abnormal." Thus, ASHA rewords a phrase such as "normal participants" to “typical participants” to avoid describing a person as “normal.” In a similar way, we rephrase “normal-hearing participants” to "participants with normal hearing" to adhere to person-first language.
- Example 2: In listing the gender breakdown of a group of participants, authors should list not only the number of male participants but also the number of female participants, even if the number of female participants can be safely assumed. For example, “30 participants (10 men)” would be expanded to “30 participants (10 men, 20 women).”
- Example 3: ASHA has been informed by members of the Deaf community that using "deaf" as an adjective to describe human participants (e.g., “deaf participants”) is acceptable and not seen as biased by the Deaf community. Therefore, no changes would be made in this example.

Instructions to Authors for International Archives of Otorhinolaryngology

Geraldo Pereira Jotz, M.D. Ph.D., Editor-in-Chief
Aline Bittencourt, M.D., Ph.D., Co-Editor
Editorial Office: Rua Teodoro Sampaio 483, Zip code 05405-000, São Paulo/SP, Brazil; Phone/Fax: +55 (11) 3085-9943; E-mail: iaorl@iaorl.org; www.internationalarchivesent.org

International Archives of Otorhinolaryngology (IAORL) is an international peer-reviewed journal dedicated to otolaryngology–head and neck surgery, audiology, and speech therapy.

IAORL is published every three months and supports the World Health Organization (WHO) and of the International Committee of Medical Journal Editors (ICMJE) politics regarding registration of clinical trials. Therefore from now on we will only accept for publication articles of clinical trials that have been given a number of identification from one of the Clinical Essay Registry validated by the criteria established by the WHO and the ICMJE, the links to which are available at the ICMJE (http://www.icmje.org/). The identification number should be given at the end of the abstract.

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The journal publishes the types of articles defined below. When submitting your manuscript, please follow the instructions relevant to the applicable article category.

Original Research

Original, in-depth, clinical or basic science investigations that aim to change clinical practice or the understanding of a disease process. Article types include, but are not limited to, clinical trials, before-and-after studies, cohort studies, case-control studies, cross-sectional surveys, and diagnostic test assessments. Components of original research are:

- *A title page*, including the manuscript title and all authors' full names, academic degrees (no more than three), institutional affiliations, and locations. Designate one author as the corresponding author. Also indicate where the paper was presented, if applicable.
- *A structured abstract* of up to 250 words with the headings: Introduction, Objective, Methods, Results, and Conclusion.
- *The Manuscript body* should be divided as: introduction with objective(s); method; result; discussion; conclusion; references.
- Manuscript length of no more than 24 pages (exclusive of the title page and abstract).
- Studies involving human beings and animals should include the approval protocol number of the respective Ethics Committee on Research of the institution from which the research is affiliated.

Systematic Reviews (including Meta-analyses)

Critical assessments of literature and data sources on important clinical topics in otolaryngology-head and neck surgery. Systematic reviews that reduce bias with explicit procedures to select, appraise, and analyze studies are highly preferred over traditional narrative reviews. The review may include a meta-analysis, or statistical synthesis of data from separate, but similar, studies leading to a quantitative summary of the pooled results. The components of a systematic review are:

- *A title page*, including the manuscript title and all authors' full names, academic degrees, institutional affiliations, and locations. Designate one author as the corresponding author. Also indicate where the paper was presented, if applicable.
- *A structured abstract* of up to 250 words with the headings: Introduction, Objectives, Data Synthesis, and Conclusion.
- *The Manuscript body* should be divided as: introduction; review of literature; discussion; final comments; references.
- *Manuscript length* of no more than 24 pages (exclusive of the title page and abstract).

Case Reports

Case Reports will no longer be accepted for submission, starting on 2015. Submitted manuscripts until December 2014 will be reviewed and published, if approved.

Update Manuscripts

The manuscript is an update that explores a particular subject, developed from current data, based on recently published works.

- *A title page*, including the manuscript title and all authors' full names, academic degrees, institutional affiliations, and locations. Designate one author as the corresponding author. Also indicate where the paper was presented, if applicable.
- *A structured abstract* of up to 250 words with the headings: Introduction, Objectives, Data Synthesis, and Conclusion.
- *The Manuscript body* should be divided as: introduction; review of a particular subject; discussion; final comments; references.
- *Manuscript length* of no more than 15 pages (exclusive of the title page and abstract).

Letters to the Editor and Opinion articles

Only by invitation from the Editorial Board. *Manuscript length*: no more 2 pages.

Manuscript Preparation

Correct preparation of the manuscript will expedite the review and publishing process. Manuscripts must conform to acceptable English usage.

Necessary Files for Submission (each topic should start in a new page):

- Title Page
- Abstract
- Manuscript (main text, references, and figure legends)
- Figure(s) (when appropriate)
- Table(s) (when appropriate)

In accordance with double-blind review, author/institutional information should be omitted or blinded from the following submission files: Manuscript, Figure(s), Table(s), Response to Reviewers.

The Abstract should be followed by three to six keywords in English, selected from the list of Descriptors (Mesh) created by National Library of Medicine and available at **http://www.nlm.nih.gov/mesh/2013/mesh_browser/MBrowser.html.**

Abbreviations

Do not use abbreviations in the title or abstract. When using abbreviations in the text, indicate the abbreviation parenthetically after the first occurrence and use the abbreviation alone for all subsequent occurrences.

Authorship

Authorship credit should be based on criteria established by the International Committee of Medical Journal Editors: (1) substantial contributions to conception and design, acquisition of data, or analysis and interpretation of data; (2) drafting the article or revising it critically for important intellectual content; and (3) final approval of the version to be published.

References

Authors are responsible for the completeness, accuracy, and format of their references. References should be numbered consecutively using Arabic numbers in the text. All authors shall be listed in full up to the total number of six; for seven or more authors, list the first three authors followed by "et al." There should be no more than 90 references for original articles and no more than 120 for systematic reviews or update articles. Refer to the *List of Journals Indexed in Index Medicus* for abbreviations of journal names, or access the list at **http://www.nlm.nih.gov/tsd/serials/lji.html.** Sample references are given below. For more information, please check: **http://www.ncbi.nlm.nih.gov/books/NBK7256/.**

Examples

- **Journals:** Author | Article Title | Journal Title | Date of Publication | Volume Number | Issue Number | Pagination.
  Huttenhower C, Gevers D, Knight R, et al. Structure, function and diversity of the healthy human microbiome. Nature 2012;486(7402):207-214
- **Dissertations and Theses: Author** | Title | Content Type | Place of Publication | Publisher | Date of Publication | Pagination.
  Baldwin KB. An exploratory method of data retrieval from the electronic medical record for the evaluation of quality in healthcare [dissertation]. Chicago: University of Illinois at Chicago, Health Sciences Center; 2004:116
- **Books:** Author/Editor | Title | Edition | Place of Publication | Publisher | Date of Publication.
  Valente M, Hosford-Dunn H, Roeser RJ. Audiology Treatment. 2nd ed. New York: Thieme; 2008
- **Book chapters:** Author of the chapter | Title of chapter | In: Editor(s) of book | Title of chapter | Place of Publication | Publisher | Date of Publication | Pagination.
  Vilkman E. A survey on the occupational safety and health arrangements for voice and speech professionals in Europe. In: Dejonckere PH, ed. Occupational Voice: Care and Cure. Hague: Kugler Publications; 2001:129-137
- **Electronic material:** for articles taken entirely from the Internet, please follow the rules mentioned above and add at the end the web site address.
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