

The Role of the SLP in Chronic Refractory Cough

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University of Manitoba: Fridays at the University

April 3/2020

Faculty/Presenter Disclosure

- **Faculty:** Colleen Braun-Janzen, RSLP, SLP(C)
- **Relationships with commercial interests:**
 - None

Introduction

SPEECH-LANGUAGE PATHOLOGY



MORE THAN JUST
WORDS

Chronic Refractory Cough - Definition

- Unexplained cough that persists >8 weeks, despite guideline-based treatment
- Aka –unexplained chronic cough, Chronic idiopathic cough, chronic cough
- Related terms- may be a primary cause of CRC
 - Cough hypersensitivity syndrome
 - Irritable larynx syndrome
 - Laryngeal hyper-responsiveness

Clinical Features of CRC

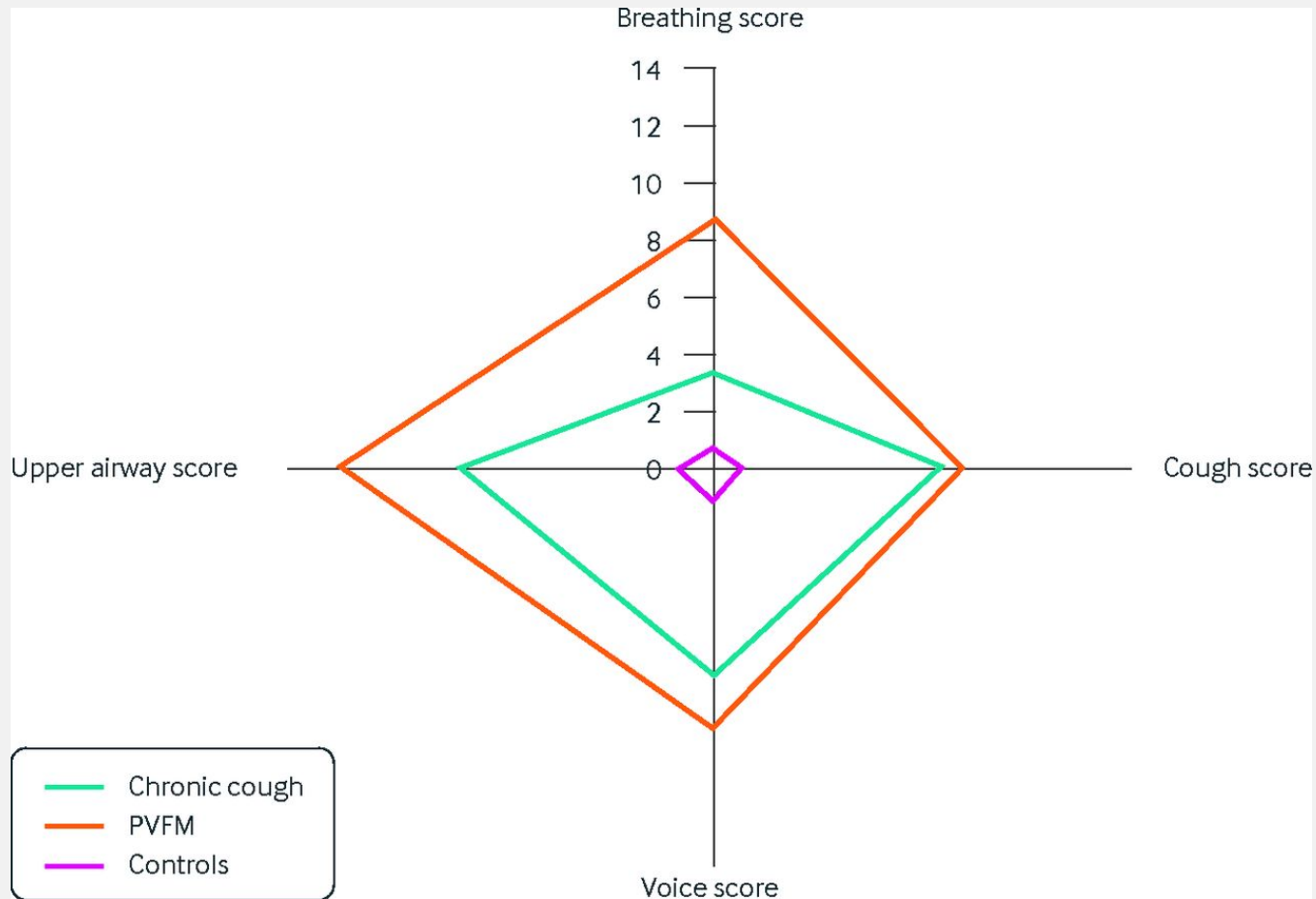
- Dry/unproductive cough
- Abnormal laryngeal sensations (tickle, itch, tightness, “lump in the throat”, dryness)
- Triggered by stimuli that do not typically induce a cough
 - cold air, air conditioning
 - low doses of perfume, chemicals, smoke
 - talking, laughing
 - Acidic & non-acidic reflux events

Clinical features – comorbidities

- Other laryngeal conditions:
 - Muscle tension dysphonia
 - Paradoxical Vocal Fold Movement / Laryngospasm
 - Muscle tension dysphagia
- Anxiety, stress
- GERD, reflux symptoms
- Central sensitivity syndromes associated with irritable larynx (Morrison & Rammage, 2010)
 - IBS (57%) , Fibromyalgia (28%), chronic fatigue (42%), chronic headache (49%) (84% reported at least 1 CSS)

Overlapping symptoms in CC & PVFM

Gibson & Verigan, 2015



Medical workup - prior to SLP referral

- Rule out serious underlying disease
- Secondary investigations/treatment:
 - Asthma
 - GERD
 - obstructive sleep apnea

ERS Guidelines, Cough Assessment in Adults, 2019

History taking and physical examination on presentation
Cough duration
Cough impact and triggers
Family history
Cough score (using VAS or verbal out of 10)
HARQ
Associated symptoms: throat, chest, gastrointestinal
Risk factors: ACE inhibitor, smoking, sleep apnoea
Physical examination: throat, chest, ear

Routine evaluation
Chest radiography
Pulmonary function test
? F_{eNO}
?Blood count for eosinophils

Initial management
Stop risk factors
Initiate corticosteroids (oral or inhaled) or LTRA, particularly when F_{eNO} or blood eosinophils high
Initiate PPI only when peptic symptoms or evidence of acid reflux are present

Follow-up assessment for cough
Cough score (using VAS or 0–10)
Associated symptoms

Additional evaluation where indicated
High-resolution oesophageal manometry
Induced sputum for eosinophils
Sputum AAFB
Laryngoscope
Methacholine challenge
Chest CT
Bronchoscopy

Improvement
Continue for 3 months and attempt withdrawal

No improvement
Consider low-dose opiate
Consider pro-motility agent
Consider gabapentin
Consider pregabalin
Consider cough control therapy

SLP Assessment

- History
- Observe breathing & cough patterns
- Exposure to triggers – if practical
- Questionnaire (Cough Severity Index, Leicester Cough Questionnaire, Newcastle Laryngeal Hypersensitivity Questionnaire)
- Screen for dysphagia, voice, reflux symptoms
- Extrinsic laryngeal muscle tension (palpation)
- Voice measures (pitch, loudness, duration)

Typical Treatment Protocol

(Vertigan et al, 2019)

- Components of behavioural cough suppression therapy (BCST)
 - Education
 - Cough suppression strategies
 - Reducing laryngeal irritation
 - Psychoeducational counseling

Education

- Physiological explanation
- Treatment IS effective –
- Goal is to increase control over the cough
- The cough can be suppressed even when feeling need to clear throat or cough
- Suppressing the cough does not cause harm
- Negative side effects from coughing: trauma, making irritation worse, perpetuating cough cycle

Reduce Laryngeal Irritation

- Vocal hygiene
- Hydration
- Reducing exposure to irritants (smoke, dust, excess caffeine or alcohol)
- Reducing vocal fold trauma (e.g. avoid yelling, excess voice use)
- Behavioural management of acid reflux

Psychoeducational Counseling

- Motivate - Behavioural change is effective!
- Validate concerns
- Identify any potential emotional triggers
- Set realistic goals
- Problem-solving – tailor program to the pt
 - Reiterate, rephrase, modify techniques

Cough Suppression: Substitution Strategies

- Substitute cough with a competing response:
 - Dry swallow
 - Swallow with sip of water
 - Effortful swallow using head flexion and valsalva (either dry swallow or with a sip of water)
 - Sucking ice
 - Chewing gum
 - Sucking sugarless hard candies or lollipops
 - Gentle clear with mouth closed and swallow
 - Change posture (release shoulder tension)
 - Relaxation & stretching exercises
 - Sniff and swallow
 - Distraction techniques – wiggle toes,

Cough Suppression: Breathing Techniques

- Pursed lip breathing (10 reps, 10x/day):
 - In through the nose – this will OPEN the vocal folds
 - Out through pursed lips (“s” “sh” “f” or silent)
- Relaxed abdominal breathing
- Back breathing

Practice when asymptomatic to help new breathing patterns become automatic. When triggers occur – use techniques to interrupt the cough



Efficacy of BCST

- Behavioral cough suppression therapy (BCST) associated with
 - Improved quality of life
 - Improvement of cough severity
 - Reduced cough reflex
 - Reduced urge to cough
 - Reduced frequency of cough
 - Decreased anxiety & depression

Cochrane Review – 2019

Speech & Language Therapy for Management of Chronic Cough

- 2 RCT studies involving 162 adults met inclusion criteria
- Conclusions:
 - SLP Tx group outcomes – reduced # coughs, improved Leicester Cough Questionnaire (LCQ) scores,
 - Short-term benefit for SLP/PT intervention, non statistical difference at 3 months
 - Quality of evidence – low
 - Too few studies to do aggregate analysis
 - Need for further high-quality research

Efficacy of speech pathology management for chronic cough.

Vertigan, et al 2006

- Single blind RCT, N=87 pts with CC (47 tx, 50 control)
- BCST by SLP - education, vocal hygiene, cough suppression, breathing exercises, psychoeducational counseling (4 sessions over 2 mo)
- Control group – healthy lifestyle, relaxation (4 sessions over 2 mo)
- Measures – 5-point rating scale of 23 items in domains of cough, breathing, voice, upper airway symptoms, and “everyday life limitations”
- Findings
 - Sig improvements in tx group scores in all domains
 - Improvement in control group in breathing, cough and limitations
 - Improvement of tx group significantly greater than in control group in all domains
- Limitations
 - No validated measures, no post tx follow up
 - Placebo tx strategies may have had more of a positive effect than anticipated

Physiotherapy, and speech and language therapy intervention for patients with refractory chronic cough.

Chamberlain Mitchell et al, 2017

- Multicentre RCT, n = 75 (34 tx, 41 control)
- Tx - 4 weekly BCST sessions with SLP or PT
- Controls – 2 sessions - healthy lifestyle advice
- Findings at 4 weeks (tx group):
 - Improvement in LCQ ($p < .001$)
 - Reduced coughs per hour ($p = .002$)
 - Improved cough severity VAS ($p < .001$)
 - Improved Hospital Anxiety Scale score ($p = .045$)
 - No sig difference in C2 capsaicin cough challenge
- Control group also demonstrated improvements at (LCQ, $p < .001$ VAS severity, $p = .007$)
- Improvements in tx group sustained at 3 months
- Differences between Tx & Control significant at 4 week for LCQ & cough frequency, but failed to reach significance at 3 months.

Pregabalin & Speech Pathology Combination Therapy for Refractory Chronic Cough

Vertigan et al 2016

- 40 pts with CRC assigned to 2 groups (randomized double blind):
 - SLP (5 tx visits) & 300 mg pregabalin daily
 - SLP (5 tx visits) & placebo
 - Medication tapered and d/c after tx (both groups)
- Results:
 - Cough severity, cough frequency, QoL (LCQ), & capsaicin cough reflex sensitivity (C5), improved in both groups
 - Degree of improvement in LCQ and VAS greater with combined SLP / pregabalin therapy
 - No difference in cough frequency & C5 between groups
 - Effects sustained after treatment withdrawal
 - Side effects (dizziness, fatigue, wt gain) reported in both groups, but higher in SLP & pregab group – no one withdrew from study.

Efficacy – other studies

- A number of smaller studies
- Chamberlaine et al 2013 systematic review – 5 studies met criteria:
 - Improvements in cough reflex sensitivity, QoL, cough severity & frequency
 - Few studies used validated and reliable tools to measure severity
 - Need for larger-powered comparative studies

BEST PRACTICE GUIDELINES

- **European Respiratory Society** — Guidelines on the diagnosis and treatment of chronic cough in adults and children. 2020, *Morice et al, Eur Resp J*
 - Cough control therapy by qualified SLP should be considered after medical investigations
- **American College of Chest Physicians.** CHEST Guideline Treatment of Unexplained Chronic Cough - 2016, *Gibson et al, CHEST*
 - SLP cough suppression treatment suggested after objective testing

Timing of BCST

- US wait times to receive BCST average 2 years*
- Patients report considerable frustration with wait times and referral processes*
- Best-practice guidelines provide no clear guidance on timing
 - At minimum - medical investigation for potential serious medical conditions
 - Inconclusive whether trials of ICS, PPI, neuromodulators should occur prior to or concurrently with BCST.
- Unclear if treatment response to BCST is better “sooner than later”

*Slovarp et al, 2015

Who should be seen by SLP?

Tips for referring physicians

REQUIRED CRITERIA for BCST

- Unexplained unproductive cough for > 8weeks
- Medical work up has ruled out serious underlying disease

PARTICULARLY GOOD CANDIDATES FOR SLP

- Concurrent laryngeal/pharyngeal symptoms --
 - Voice problems*
 - PVFM, laryngospasm
 - Globus sensation
 - Swallowing (“sticking in the throat”)

*Visualization of the vocal cords (ENT) should occur for before voice treatment by SLP

Conclusions

- SLPs uniquely qualified to provide BCST for CRC as well as for frequently co-existing laryngeal symptoms.
- SLP Tx concurrent with pharmacological intervention may be of benefit
- **Benefits** – cost-effective, non-invasive, efficacious
- **Risks** – No serious adverse effects reported in the literature
- **Cautionary notes & outstanding questions** –
 - Level of evidence is low – more robust research needed
 - Underlying mechanisms not fully understood
 - Best timing of SLP intervention is not well understood

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