Atypical Parkinsonism:

PSP
CBD
MSA

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Learner Objectives

- The participant will be able to identify neurological and motor speech characteristics which may distinguish PD from PSP, CBD, and MSA.
- The participant will interpret the clinical research to clarify the different communication and swallowing considerations for PSP, CBD, and MSA versus PD.
- The participant will obtain some speech and swallowing therapy strategies applicable to the atypical parkinsonism population.

Introduction

- What is Parkinson disease?
- What is Atypical Parkinsonism and why does it matter?
- What are PSP, CBD, and MSA?
- What are the potential impacts to swallowing and communication?
- Video clips
- What are some SLP strategies that you may or may not have considered?

Disclosure

- I have no relevant financial relationship(s) to disclose.
- I have relevant nonfinancial relationship(s) with the products or services described, reviewed, evaluated or compared in this presentation.

  - CurePSP – Foundation for PSP CBD and Related Brain Diseases
  - Present member Medical Professionals Advisory Committee
  - Prior member Board of Directors
Parkinson Disease (PD)

- First described in 1817 by James Parkinson as “the Shaking Palsy”
- Parkinsonism is a syndrome manifested by a combination of the following six cardinal features
  - Tremor-at-rest
  - Rigidity
  - Bradykinesia
  - Loss of postural reflexes
  - Flexed posture
  - Freezing
- Combination of these signs is used to clinically define definite, probable, and possible parkinsonism

Parkinson Disease

- PD most common type of Parkinsonism
- Hypokinetic movement disorder of reduced intentional motor activity w/pure hypokinetic dysarthria
- Incidence 13/100000 - number of new cases per year
- Prevalence 150-200/100000 - total number of cases within the population
- PD patients have a nearly normal life expectancy
- PD is distinguished by its excellent response to dopaminergic medications that is maintained over many years
- More rapid progression in the early stages than in more advanced stages of the disease

Parkinson Disease?

- When is it likely NOT PD but another parkinsonian disorder despite some parkinsonian features?
- Clinical diagnosis always warrants periodic scrutiny
  - Rapid disease progression
  - Absence or paucity of tremor
  - Early gait abnormality
  - Postural instability including falls
  - Pyramidal tract findings (UMN, pseudobulbar palsy)
  - Poor response to levodopa
  - Early dysphagia
  - Presence of dysarthria type other than hypokinetic with diagnosis of PD should raise questions regarding accuracy of the PD diagnosis (Duffy, 2013)

Atypical Parkinsonism

- Second most common group of parkinsonian patients
- Categorized clinically as having parkinson-plus disorders
- Categorized pathologically as having multiple system degenerations
- No biologic markers for any of these disorders
- No definitive imaging or genetic diagnostic tests
- Diagnostic criteria are based on the presence of certain clinical features, timeline, and neuropathologic confirmation
Atypical Parkinsonism Diagnosis

- Likely under diagnosed, and delayed diagnosis is common
- Patients often receive an alternate diagnosis for 1–2 years, as clinically difficult initially to differentiate from PD
- Rarely is the constellation of symptoms present at onset making diagnosis difficult; and manifestations often overlap
- Clinical misdiagnosis, particularly at early disease stages, is a roadblock to finding new therapies
- Recruiting patients for research at an earlier stage is challenging (Rittman et al., 2012)
- As the global population ages, the incidence of these type of diseases will quickly rise

Atypical Parkinsonism Features

- Share characteristics of PD
- Broad spectrum of clinical features
- Progress more rapidly than PD – relentless, fatal
- Poorly sustained or no response to levodopa
  - Diagnosis of AP should be considered in all patients presenting with parkinsonism not responding to levodopa therapy
  - Typically sporadic vs. familial (hereditary), or secondary (acquired)
- Exhibit additional parkinson “plus” features
- Motor speech (Rusz et al., 2015) and swallowing disorders typically develop early and are prevalent throughout
- Not much is known about these conditions, even less about the appropriate compensations or rehabilitative techniques

Atypical Parkinsonism

- No medical cure, means to delay disease progression, disease modification, or neuroprotective therapies presently exist - only symptomatic treatment
- www.clinicaltrials.gov - No NIH funded studies presently on AP and speech or swallowing; 1 on gait assisted training in PSP
- Pathologically classified as proteinopathies
  - Accumulation of protein aggregates (abnormal, rigid, misfolded) with toxic consequence of preventing normal brain cell function
    - Structure of the protein changes dramatically over the course of the disease
  - **Tauopathy**
    - Accumulation of protein Tau which forms neurofibrillary tangles (NFTs)
  - **Synucleinopathy**
    - Accumulation of protein α-Synuclein (αSyn)

Proteinopathy Pathophysiology

**Tauopathy**
- PSP (progressive supranuclear palsy)
  - Classified 1998
    - Brainstem, basal ganglia
- CBD (corticobasal degeneration)
  - Classified 2001
    - Parietal cortex, basal ganglia
- FTDP (fronto-temporal dementia w/Parkinsonism)
- AD (Alzheimer’s disease)

**Synucleinopathy**
- PD (Parkinson disease)
- MSA (multisystem atrophy)
  - Classified 1998
    - Cerebellum, basal ganglia
- DLB (dementia w/Lewy bodies)
  - Classified 1998
    - Dementia prior to the onset of parkinsonism
  - 2nd most common degenerative dementia >65 y.o.
PSP

- Progressive Supranuclear Palsy
- First detailed description in 1963 by Steele, Richardson & Olzewski (previously SRO Syndrome)
- Most common parkinsonian disorder following Parkinson disease (Savica et al., 2013)
- Most commonly misdiagnosed as PD (Respondek et al., 2014)

Epidemiology
- Onset > 40 y.o.
- Death within 6 - 10 years
- Incidence 1.1/100000; Prevalence 4.9-6/100000
- Sporadic, however familial PSP has been reported

Median time from symptom onset to clinical diagnosis is 3-4 years (Golbe, 2008)
- Mean survival from onset of symptoms is 6 years
- Progresses relentlessly
- Earlier onset of dysphagia and cognitive impairment, and older age at onset leads to shortened survival (Dell’aquila et al., 2013)
- Dysphagia pervasive in mid-late stages - latency 4.4 years (Tomita et al., 2015)

Core clinical features
- Typically symmetric
- Frontal-executive dysfunction
- Behavioral changes (apathy, disinhibition, irritability) may signal onset
- Pseudobulbar palsy

PSP Criteria

- Diagnostic criteria established by NINDS-SPSP (1996)
  - Vertical supranuclear palsy or slowing vertical saccades
  - Supranuclear ophthalmoplegia
  - AND postural instability with falls within 1 year of disease onset
  - Gait, balance, and ocular disturbances lead to early falls

- PSPRS – PSP Rating Scale (Golbe & Ohman-Strickland, 2007)
  - Criteria established focusing on PSP-RS (Richardson’s Syndrome)

- Neuroprotection and Natural History in Parkinson Plus Syndromes (NNIPPS) consortium proposed modified clinical diagnostic criteria (Respondek et al., 2013; Bensimon et al., 2009)
  - Validation ongoing

PSP Subtypes

- Multiple variants
  - Phenotypic spectrum of PSP may be broader than previously reported (Respondek et al., 2014)

- 2 most common variants
  - Richardson’s Syndrome (PSP-RS)
  - PSP Parkinsonism (PSP-P)

- Others
  - PSP-Pure akinesia with gait freezing (PAGF)
    - Pure akinesia
  - PSP-Corticobasal syndrome
    - Asymmetric parkinsonism
  - PSP-Frontotemporal dementia
    - Progressive non-fluent aphasia and dementia
PSP Subtypes

- Richardson's Syndrome (PSP-RS)
  - Most common PSP variant
  - Early postural instability, including falls
  - Supranuclear gaze palsy
  - Personality changes – apathy and impulsivity
  - Responds poorly to levodopa
  - Latency to dysphagia shorter than PSP-P
  - Shorter disease course – mean disease duration 7 yrs.

- PSP Parkinsonism (PSP-P)
  - Approximately 1/3 of the cases
  - Mean disease duration 11 yrs.
  - Unilateral or asymmetrical bradykinesia and rigidity at disease onset
  - Tremor at rest
  - May exhibit short lived levodopa response

PSP vs. PD

- Remember “FIGS”
  - F = Frequent sudden falls
  - I = Ineffective medication
  - G = Gaze palsy
  - S = Speech and swallowing changes

PSP: Swallowing

- Aspiration pneumonia is most common complication
  - Time to initial development of pneumonia strongly correlates with survival time, with 2.3-year latency from the initial development of pneumonia to death (Tomita et al., 2015)
  - Early fall and cognitive decline were significant predictors of pneumonia (Tomita et al., 2015)

- Impulsivity leads to rapid drinking and mouth stuffing, considered “sloppy eaters” – often leading to further decompensation
  - “greed for food” (Erro et al., 2013)

- Lack of awareness of swallowing difficulties
- Difficulty looking down at the plate because of supranuclear ophthalmoplegia
- Retrocollis - neck rigidity/hyperextension

- Lingual impairment, poor bolus control, delayed initiation of swallow, vallecular > pyriform sinus stasis, diminished pharyngeal contraction and UES relaxation, and infrequent aspiration (Alfonsi et al., 2007; Litvan et al., 1997; Leopold & Kagel, 1997; Johnston et al., 1997; and Sonies, 1992)

- None of the patients complained of dysphagia, however this was acknowledged by the caregiver (Leopold & Kagel, 1997)
- Poor cough
- Occasional difficulty opening mouth
**PSP: Communication**

- Dysarthria more pronounced than PD
  - Prominently spastic-hypokinetic, progresses to anarthria
  - Increased dysfluency, decreased slow rate, inappropriate silences, deficits in vowel articulation, harsh voice quality (Rusz et al., 2015)
  - Primary progressive apraxia of speech may evolve in some to a PSP-like syndrome (Josephs et al., 2014) ~ 5 years after onset
- Occasional ataxic features
- Groaning, moaning
- Palilalia
  - Compulsive repetition of utterances in context of increasing rate and decreasing loudness
- Emotional lability (pseudobulbar affect)
- Fronto-temporal dementia (FTD) and progressive non-fluent aphasia (PNFA) have been observed

**CBD**

- Initially described in 1968 by Rebeiz, Kolodny & Richardson
- Epidemiology
  - Age onset ≥ 50 y.o.
  - Incidence <1/100000; Prevalence 2/100000
  - Life expectancy 7-10 years
  - Sporadic
- Least common atypical parkinsonism disorder
  - May only be diagnosed postmortem

**CBD Criteria**

- Neuropathologic criteria established (Dickson et al., 2001)
  - Corticobasal degeneration
- New clinical criteria pending (Armstrong et al., 2013); validity not yet verified
  - Two levels of clinical confidence, possible and probable
  - Can exist with PSP, FTD and focal AD
- CBD subtypes
  - Corticobasal syndrome (CBS) - 50% of all CBD cases
  - Progressive supranuclear palsy syndrome (PSPS)
  - Frontal behavioral-spatial syndrome (FBS)
  - Nonfluent/agrammatic variant of primary progressive aphasia (naPPA)

**CBD Core Clinical Features**

- Movement disorders
  - Asymmetric disease (only PD also presents with such asymmetry)
  - Parkinsonism
  - Intention tremor
  - Limb rigidity (vs. neck rigidity more typical to PSP)
  - Limb dystonia
- "Alien limb" phenomena
  - Intact sensation but unintended movements (i.e. involuntary grasping, purposeless movements, or levitation in an apraxic limb, etc.)
CBD Core Clinical Features

- Cortical signs
  - Apraxia
    - Ideomotor (not knowing “how to do it”)
    - Oral and speech (apraxia of speech - AOS)
      - Can be initial manifestation without aphasia or dysarthria (Duffy et al., 2015)
  - Progressive aphasia or cortical dementia
    - Features often overlap with PD, PSP, AD, PPA/PNFA, and FTD
    - May be an early underappreciated feature (Mathew et al., 2011)

CBD vs. PD

- Remember “CIAO”
  - C = Cognitive changes
  - I = Ineffective medications
  - A = Asymmetrical presentation; apraxia
  - O = Odd movements or feelings
    - Slow, stiff, shaky, clumsy

CBD: Swallowing

- Impaired self-feeding secondary to apraxia or alien limb
- Slow or incomplete chewing
- Oral and swallowing apraxia
- May be aware of swallowing difficulties
- Onset of dysphagia occurs within year of onset of dysarthria (Muller et al., 2001)
  - Suggests a shortened life expectancy
- Expect oral and pharyngeal phase findings

CBD: Communication

- Hypokinetic and spastic dysarthria
  - Dysarthria severity correlates with disease severity, not disease duration
- Progressive apraxia of speech (AOS) and oral apraxia
- Progressive non-fluent aphasia (PNFA) may be strongly associated with this diagnosis
- “yes – no” reversals
- Written language may be intact initially
- Fronto-temporal dementia (FTD) may be present but typically a later feature
- Progresses to anarthria
**MSA**

- Multi-system Atrophy
- First described in 1969 by Graham & Oppenheimer as an “umbrella” term for a constellation of symptoms (Shy-Drager Syndrome)
- Caused by a newly discovered type of prion – a protein which can replicate and spread disease (Prusiner et al., 2015), similar to Creutzfeldt-Jakob disease (CJD)
- **Epidemiology**
  - Age of onset usually after 50 y.o.
  - Progresses for average 7-10 years, can be substantial variation
  - Incidence 4.4/100000; Prevalence 4.6/100000
  - Sporadic disease without apparent underlying cause
- 2 sub-types: MSA-P, MSA-C

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**MSA Core Clinical Features**

- Poorly levodopa responsive parkinsonism
- Cerebellar ataxia
- Severe early autonomic failure
  - Orthostatic hypotension, urinary incontinence, constipation, and sexual impotence
  - Autonomic dysfunction linked with more aggressive disease progression (Tada et al., 2007)
- Pyramidal signs (UMN/pseudobulbar palsy)
- Neck dystonia (anterocollis)
- Loss of balance
  - Early falls at disease onset rare, suggests PSP
- Dementia uncommon (more likely DLB)
  - DLB most common misdiagnosis, then PSP and PD (Koga et al., 2015)

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**MSA**

- Unified MSA Rating Scale (UMSARS) (Wenning et al., 2004)
- Second consensus statement (Gilman et al., 2008)
  - Possible, probable, definite
- Neuroprotection and Natural History in Parkinson Plus Syndromes (NNIPPS) clinical criteria (Bensimon et al., 2008)
  - Validity not yet verified
- Inspiratory stridor develops in ~30%
  - Either vocal fold abductor paresis (PCA atrophy/weakness associated with depletion of neurons), or laryngeal dystonia of adductor muscles (Ozawa et al., 2016; Higo et al., 2003; Merlo et al., 2002)
  - CPAP
  - Rare tracheotomy or chemodenervation/botulinum toxin to VFs (Sinclair et al., 2013)
- Median survival following diagnosis of VFMI = 51 months (Lalich et al., 2013)

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**MSA-P (Parkinsonism)**

- Parkinsonian features predominate – initially difficult to distinguish from PD
- More common in western hemisphere
- Progressive bradykinesia and rigidity
- Typically symmetric onset
- Tremor less common
- Anterocollis
- Predominant MSA subtype
- Late onset of dysautonomia is favorable prognostic factor (Wenning et al., 2013; Petrovic et al., 2012; Tada et al., 2007)
- Neuropathology reveals striatonigral system involvement
- Previously Striatonigral Degeneration
MSA-C (Cerebellar)

- Cerebellar features predominate
  - Difficult to distinguish from other adult onset cerebellar ataxia
  - More common in eastern hemisphere
  - Gait ataxia and limb akinetic ataxia
  - Cerebellar oculomotor disturbances
  - Neuropathology reveals olivopontocerebellar lesions
  - Previously *Olivopontocerebellar Degeneration*

MSA: Swallowing

- Anterocollis
- Difficult sitting upright at mealtimes
- Bolus holding, and discoordinated bolus formation and propulsion
  - Difficulty initiating the pharyngeal swallow (Alfonsi et al., 2007); pharyngeal weakness and disruption of the cricopharyngeal segment; and excessive accumulation of pharyngeal secretions
- May not initially impact ADLs, but can progress rapidly (Isono et al., 2015)
- Cough may be compromised
- MSA blood pressure drops following meal times
  - Post prandial hypotension
  - Recommend eating more frequent smaller meals

MSA: Communication

- Cognitive impairment is typically mild (Rusz et al., 2015)
- MSA-P
  - Hypokinetic dysarthria, sometimes mixed with spastic or hyperkinetic; and hypophonia
  - High pitched, quivery, weak, croaky
  - No significant differences in early speech patterns between PD and MSA-P (Huh et al., 2015)
    - Male patients with more profound speech impairment
    - Increased voice pitch, prolonged pause time, and reduced speech rate
- MSA-C
  - Ataxic dysarthria, may be in combination with spastic
  - Excess intensity variation, prolonged phonemes
  - Scanning dysarthria - decomposition of words into monosyllabic parts and loss of normal phrasing and intonation

Key Features of Parkinsonian Syndromes

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<th>CBD</th>
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<td>Autonomic Instability</td>
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<td>Early falls</td>
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<td>Cortical Signs (apraxia, agnosia)</td>
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<td>Good Response to Levodopa</td>
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**SLP Management: Atypical Parkinsonism**

- Earlier neurological diagnosis may allow for enhanced preparation for disability and education
- Definitive diagnosis serves to inform about prognosis, expected clinical progression, disease course, and potentially useful therapeutic modalities
- Early speech pathology consultation
  - Dysarthria with various combinations reflects differing pathophysiology, and clarification of motor speech characteristics may help distinguish these diseases with similar manifestations (Rusz, et al., 2015)

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**Atypical Parkinsonism: Treatment Limitations**

- Most studies conducted on PD
- Clinical expertise remains limited because disorders are less common
- Disease neuropathology is more widespread vs. PD
  - Mixed dysarthria is common and variable
  - Presence of cognitive, linguistic, and/or motor impairment will impact decision making and progress
- Early life-threatening manifestations
- Early and pronounced cognitive impairment (PSP, CBD)
- Rapid progression

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**SLP Management: Atypical Parkinsonism**

- Enhance communication effectiveness quickly and efficiently
  - What are the primary features of the impairment?
  - Presence and characterization of dysarthria
  - Presence and characterization of apraxia
  - Where are you likely to have the greatest impact?
- Index of suspicion for dysphagia in these patients should be high
  - Continue oral feeding as long as possible for both enjoyment and independence
  - Frequent monitoring of swallowing function
- Counseling/education regarding anticipated disability secondary to progressive dysarthria and dysphagia

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**SLP GOALS**

- Speech & swallowing goals should be prioritized to rapid progression and multiple impairments
  - What do you, the patient, and care partners hope to accomplish?
  - Is that a reasonable expectation?
- GOAL presently is symptomatic treatment, maintenance, and education
Instrumental Assessment

- VFSS is recommended … (Yorkston et al., 2012)
  - If the clinical swallowing evaluation reveals findings that do not match the constellation of symptoms or the individual’s complaint
  - And history suggests multiple problems
- VFSS is best instrumental swallowing examination in this population
  - Enhances the chance of directly observing the movement abnormalities that contribute to dysphagia
  - Likely to be component of oral phase deficits in movement disorders (Rosenbek & Jones, 2009)
- Establish baseline level of function and rule out non-neurogenic causes

Instrumental Assessment VFSS/FEES

- VFSS must replicate home eating environment
- FEES may be difficult because of positioning and tremor
- PD Dysphagia Severity Rating Scale (Waxman et al., 1990)
  - Rating 1 (severe dysphagia) -7 (normal swallowing)
- Clinical follow up in natural environments when possible is critical (Rosenbek & Jones, 2009)

Some Treatment Options

- Pharmacologic Management
  - Chemodenervation
  - Secretion management
- Swallowing Therapy
- Procedures
  - Vocal fold augmentation
  - PEG
- Alternative Nutrition
- Speech Therapy

Chemodenervation

- Botulinum toxin
- Cervical dystonia MSA (Thobois et al., 2001)
  - Dysphagia is minimized by avoiding injecting below the angle of the jaw
- Limited application for cricopharyngeal dysfunction in the AP population
- Salivary glands (Gomez-Caravaca et al., 2015; Mancini et al., 2003)
  - Drooling (sialorrhea) and accumulation of secretions is common
  - Improvement in 65% of patients w/duration benefit 4 months +/- 2 months
  - May be contraindicated in moderate to severe OP dysphagia
- **Consider baseline VFSS prior to any injections**
Secretion Management

- Reduction in swallowing frequency or efficiency and posture vs. hypersalivation in PD (Tumilasci et al., 2006; Proulx et al., 2005)
- Discuss medical options with NRO
  - Mucolytics
    - Guaifenesin
  - Anti-cholinergics
    - Atropine drops sub-lingual: 1-2 drops 1-2x/day for excessive secretions
    - Scopolamine patch/Pilocarpine
    - Glycopyrrolate/Robinul
  - Personal portable suction machine
  - Cough assist
  - Sips of club soda/sparkling water
  - Use sponge swabs to help clear oral secretions
    - Dip swab in diluted Listerine Zero or Mucinex

Swallowing Therapy

Disease Specific Considerations

- PSP
  - Keep plate in the line of vision
  - Restrict liquid and food bolus volumes
    - Smaller utensils, modified cups, etc.
  - Make sure food is swallowed before taking more
  - Compensate for head/neck extension
- CBD
  - Use less affected side for self-feeding
  - Compensate for apraxia
- MSA
  - Compensate for difficulty sitting upright
  - Compensate for head/neck flexion

Neuromuscular Electrical Stimulation (NMES)

- Limited data overall, 3 studies specific to PD
  - Pilot study single session electrical stimulation using 3 separate electrode placements in 10 PD w/dysphagia and 10 healthy controls (Baijens et al., 2012)
  - 88 PD demonstrated benefit from swallowing therapy, no significant group differences between traditional therapy with and without NMES (Heijnen et al., 2012)
  - Used different intensities of electrical current (Baijens et al., 2013) over 15 d., no significant group differences between traditional therapy with and without NMES
  - Clinical efficacy and utility of this therapy remains unproven for PD and atypical parkinsonism population

Procedures

- Vocal fold augmentation
  - Radiesse, Cymetra, autologous fat, etc.
  - Possibly MSA, PSP
    - Only if VF motion intact in MSA
  - Enhance cough, voicing, airway protection
  - Will only be helpful with adequate respiratory drive and participation in voicing/coughing efforts
- PEG
Alternative Nutrition

- Oropharyngeal swallowing function will deteriorate
- How much time and effort does it take to eat and drink throughout the day?
- What is the level of distress with continued oral feeding?
- Does eating lead to fatigue?
- Do meal times take longer than an hour?
- Does the swallowing impairment outweigh other deficits?
- Is there noticeable weight loss, malnutrition and dehydration?
- Is level of consciousness interfering with oral intake?

Alternative Nutrition

- Discussions regarding feeding tube options should take place sooner rather than later, PRIOR TO health crisis, and repeated often
- Patients and family may be fearful to discuss
- Decisions must revolve around the assessment of burdens and benefits
- Requires value judgments and consideration of quality of life
- **Patient and family should agree in advance with a physician about what is hoped to be accomplished with or without placement of a feeding tube**

Resources

- AGS Position Statement
- Consumer Reports Health
- Health in Aging

Motor Speech Assessment

- Mayo Clinic dysarthria studies (Duffy, 2013)
Speech Self-Assessment

- Communicative Effectiveness Survey (Donovan et al., 2008)
  - 8 item 4 point survey
  - Patient completed
  - Validated for PD and dysarthria
  - Treatment outcome measure

Speech Therapy

- Communication is the ultimate goal
  - Promote use of residual function
  - Adjust when function is lost

- Often recommend a trial
  - Looking for stimulability

- Speaker oriented efforts
  - Reduce or compensate for impairment
  - Recovery/improvement of speech requires speaking

- Communication oriented efforts
  - Improve communication even if speech does not improve
  - Includes speaker and listener

- Anarthria is not responsive to rehabilitation

Speech Therapy

- PSP
  - LSVT LOUD® (Sale et al, 2015; Countryman & Ramig 1994)
    - Lee Silverman Voice Treatment ®
    - High effort intensive treatment
    - Improvement in MPT, though more improvement in quality of voice and articulation in PD
    - Most predictable outcomes when administered in idiopathic PD
  - Personal portable amplifier
    - Spokeman, Chattervox, etc.
  - Compensate for palilalia – “say it once”

Speech Therapy

- CBD
  - Use short phrases and simpler language because of increased errors with increased rate of speech, # syllables, and complexity of language
  - Repeated motoric practice (Wambaugh et al., 2006)
    - Articulatory kinematic approach
    - Targeted phonemes building in complexity
    - Repeated practice alone, without any therapy techniques other than minimal feedback, resulted in improved articulation of target items
  - Optimize use of written language
    - Alert to “yes – no” confusion
      - Use “Y” “N” magnet letters for selection, red/green cards, etc.
**Speech Therapy - CBD**
**Partner Training**
- Demcak et al., 2011
- Single subject
- Increase positive support behaviors – reduce unsupportive behaviors
- Train the conversational partner to influence communication success of person with CBD
  - Written choices
  - Quizzing and direct questions
  - Appropriate wait time
  - Writing key words to anchor/pace interaction
- Share strategies with others in community
- May increase conversational participation

**Speech Therapy MSA**
- Particularly MSA-P
- LSVT LOUD® (El Sharkawi et al., 2003; Sapir et al., 2003; Countryman & Ramig 1994)
- Personal portable amplifier

**Speech Therapy**
**Atypical Parkinsonism**
- Start early for compensatory techniques
  - Phrasing/syllabification/breathe first/projection, etc.
  - Cueing will likely need to be provided by caregiver
  - Improved speech requires MORE speaking
- Script Training (Cherney et al., 2008)
  - Create and practice scripts that can be used in every day life
- Communication Circles (Walsh, 2010)
  - Use social network to create a circle of people who can help practice speaking in person or by telephone
- Spaced Retrieval (Camp et al., 2012)
  - Memory intervention that gives patients with mild to moderate dementia practice at successfully recalling important information over progressively longer intervals

**Assistive/Augmentative Communication**
- Consider cognitive, motor and vision limitations
- Communication board
  - Alphabet, words, pictures
  - Direct selection v. partner assisted scanning
  - Can provide meaningful lexical support during structured conversation
- Speech Supplementation strategies (Hustad et al., 2003)
  - Alphabet cues and combined topic/alphabet cues increase intelligibility
  - Cues to constrain listener expectations
  - Also contributed to marked reductions in speaking rate
  - Start with alphabet supplementation as it is easier to implement
- Speech Generating Device (SGD)
  - iPad text to speech
- Voice Banking
iPad Apps

- It is not clear which apps or device are most appropriate.
- Depends upon the person’s skills and communication needs, and each disease has some of its own considerations.
- Apraxia and alien limb phenomena of CBD may make it difficult to access a device, however written options may be a consideration as that is usually initially intact.
- Vision limitations in PSP may make it difficult to see the device.
- May be some posture and ataxia considerations in MSA.
- Presence of dementia particularly in PSP or CBD may limit the technological options.

Respiratory Muscle Strength Training

- Sapienza & Troche, 2012
- Forcefully inhale or exhale against graded resistance.
- IMST (inspiratory muscle strength training)
- EMST (expiratory muscle strength training)
- IMST/EMST products
  - EMST 150, POWERbreathe Plus, The Sports Breather, POWERLUNG, EXPAND A LUNG, UltraBreathe, etc.
- Used to improve cough, swallowing, breath support, PVFM.
- Studied in normals, elderly, MS, and PD.
  - Improved hyolaryngeal excursion in PD (Troche et al., 2010)
  - Increases maximum expiratory pressure (MEP), improvement in Penetration-Aspiration Scale, and improved cough (Sapienza et al., 2011).

Speech Therapy

- Incorporate listener strategies
  - Keep comments/questions brief
  - Stick with familiar topics/one at a time
  - Directed “yes – no” question format
  - Provide choices to ease decision making.
- Emergency situations
  - Medical alert
  - Caregivers should be instructed on the Heimlich maneuver.

CONCLUDING REMARKS

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- www.psp.org
Atypical Parkinsonism: PSP CBD MSA  
SHAV 2016
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Oral Hygiene:
Biotene dry mouth oral care product line  www.biotene.com
ACT Total Care Dry Mouth  http://www.actfluoride.com/act-dry-mouth.html
Oasis Moisturizing Mouthwash  http://oasisdrymouth.com/
Plak-Vac & Plak-Vac/Res-Q-Vac oral suction toothbrush system
http://www.trademarkmedical.com/personal/personal-oral.html

Swallowing/Feeding:
Flexi-Cut Cups  www.alimed.com
Independence Spillproof Flo Tumbler  www.kcup.com
Provalie Cup  http://www.alimed.com/provale-cup.html
Wedge Cup  http://www.wedgecup.net/

Swallowing Cookbooks:
http://www.mda.org/publications/PDFs/meals_easy_swallowing.pdf
Quici M.  *Think Outside the Blender: Great-tasting and Healthy Recipes for Dysphagia Diets*.  2014.  CreateSpace.

Communication:
Vidatak boards/iPad  http://www.vidatak.com/index.html
Giving Greetings  http://www.givinggreetings.com/olderadults.html
Proloquo2Go  http://itunes.apple.com/app/proloquo2go/id308368164?mt=8
Family Caregiver Alliance:  10 Tips for Communicating with a Person with Dementia
http://www.caregiver.org/caregiver/isp/content_node.jsp?nodeid=391
Communication Circles  http://livingwithmsa.com/about-communication-circles/
Speak Up for Parkinsons  https://itunes.apple.com/us/app/speak-up-for-parkinsons/id784117908?mt=8
TouchChat  http://www.silver-kite.com/touchChat
Tobii Sono Flex  http://www.tobiidynavox.com/sono-flex/

Respiratory Trainers:
EMST 150  http://www.emst150.com/
POWERbreathe Plus  http://www.powerbreathe-usa.com/
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Linebaugh C. The dysarthrias of shy-drager syndrome. JSJD. 1979. 44:55-60.


