


Welcome to Passy-Muir's Event Webinar:
Communication and Swallowing Management
for ALS Patients with Tracheostomy

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COMMUNICATION AND SWALLOWING MANAGEMENT
FOR ALS PATIENTS WITH TRACHEOSTOMY



Disclosure Statement

- Passy-Muir, Inc. has developed and patented a licensed technology trademarked as the Passy-Muir® Tracheostomy and Ventilator Swallowing and Speaking Valve. This presentation will focus primarily on the biased-closed position Passy-Muir Valve and will include little to no information on other speaking valves.

Presenter



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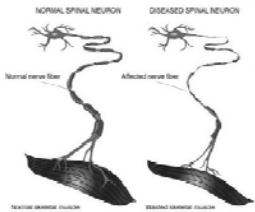
Disclosure: Financial — Employee of Passy-Muir Inc.
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Course Outline

1. What is ALS?
2. Respiratory and Muscle Impairments
3. Swallowing impairments and alternative means of nutrition
4. Speech Impairments and options
5. Case Study

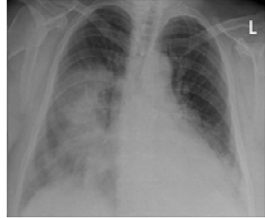
What is ALS

- Degenerative motor neuron disease
- Flaccid/spastic
- Bulbar vs. spinal



Impaired Ventilation

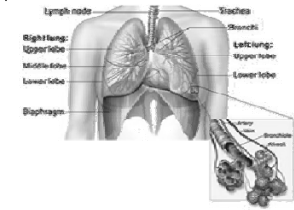
- Restrictive pattern of hypoventilation
 - Gas trapping can occur
- Decreased lung compliance
- Reduced lung capacities
- Stiff chest wall



By Malvinder S Parmar (BMC Infectious Diseases 2005, 5:30) (<http://www.biomedcentral.com/1471-2334/5/30>) [CC-BY 2.0 (<http://creativecommons.org/licenses/by/2.0/>), via Wikimedia Commons]

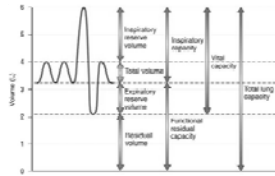
Difficulty Clearing Secretions

- Weak coughing
- Difficulty taking a deep breath
- Fatigue quickly
- Increased risk of infection



Pulmonary Tests

- Forced Vital Capacity (FVC)
 - Significant predictor of survival
 - Ninety percent of episodes of respiratory failure occur during chest infections when FVC is less than 1.5 L and peak cough flow (PCF) is less than 160 L per minute



Stuart, C. et al (2013). Perspectives on Swallowing Disorders 22(1), 17-25

Pulmonary Tests

- Nocturnal Oximetry
 - Detects nocturnal hypoventilation



Pulmonary Tests

- Peak cough expiratory flow
 - Greater than 160L/min are needed to clear secretions



Miller, R.G. et.al.(2009). Neurology 13: 73(15): 1218-1226

Mechanical Ventilation and ALS

- Noninvasive ventilation may enhance quality of life (QOL)
 - Prolongs survival
- Tracheostomy may be considered to preserve QOL who want long-term ventilatory support



Miller, R.G. et.al.(2009). Neurology 13: 73(15): 1218-1226

Cough Techniques

- Mechanical in-exsufflation
- Manual Breath stacking
- Manual Assisted Cough

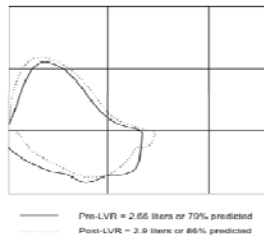
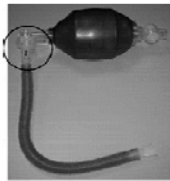
Mechanical In-Exsufflation (MIE)

- MIE via tracheostomy tube and an inflated cuff was more effective in eliminating airway secretions than ordinary suctioning.
- Blood oxygen saturation, peak inspiratory pressure, mean airway pressure, and work of breathing all improved



Miller, R.G. et.al.(2009). Neurology 13: 73(15): 1218-1226

Manual Breath Stacking



Cleary, S. et al. (2013). Perspectives on Swallowing and Swallowing Disorders 22:17-25

Manual Assisted Cough



Courtesy of the Muscular Dystrophy Association

Respiratory Muscle Training

- Diaphragmatic and purse lip breathing:
 - EMST 150
 - Threshold PEP
- Therapy to assist in lung expansion, coughing and airway clearance
 - Acapella
 - EZ Pap
 - The Breather



Swallowing Evaluation

- History
- Classification of type
- Assessment of speech/swallow function
- Respiratory status



ALS Severity Scale Swallowing

Swallowing	Ability	Points
Normal eating habits	Normal swallowing	10
	Nominal abnormality	9
Early eating problems	Minor swallowing problems	8
	Prolonged time or smaller bite size	7
Dietary consistency changes	Soft diet	6
	Liquefied diet	5
Needs tube feeding	Supplemental tube feeding	4
	Tube feeding with occasional oral nutrition	3
No oral feeding	Secretions managed with aspirator and/or medications	2
	Aspiration of secretions	1

Hillel AD, Miller RM et al. Amyotrophic Lateral Sclerosis Severity Scale. Neuroepidemiology, 1989; 8: 142-150

Common Swallow Issues in Bulbar onset

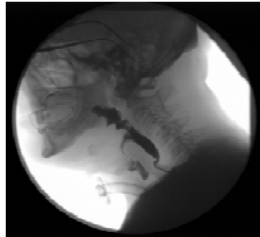
- Delayed bolus transport
- Bolus stasis at pyriform sinus
- UES well maintained
- Bolus holding, constriction of pharynx, and laryngeal elevation became worse over time
- Fatigue



Higo, R. (2004). Auris Nasus Laryx Sep; 31(3): 247-54

Objective testing

- Use for symptoms that cannot be explained by the physical exam
- Useful to by 6 months following bulbar symptom onset
 - Repeat VF at 1 year



Yorkston et al (2004).

Dysphagia Management

ALS Swallow Scale Rating	Treatment
10- Normal	Carry out swallow assessment
9- Only pt notices	Discuss anatomy and physiology of swallow and explain reason for minor difficulties

ALS Swallow Scale Rating	Treatment
8- Minor difficulty	<ul style="list-style-type: none"> • Refer to dietary • Small meals with extra snacks • Refer to OT if needed for feeding
7- Prolonged meal time	<ul style="list-style-type: none"> • Smaller bites • Assisted cough • Posture advice • Discuss choking management • Consider video (Kidney, 2003)


ALS Swallow Scale Rating	Treatment
6- Diet consistency changes	<ul style="list-style-type: none"> • Mainly soft foods • Trial compensatory strategies- ie. Chin tuck
5- Liquefied diet	Liaise with pharmacist regarding tablet crushing

ALS Swallow Scale Rating	Treatment
4- Needs tube feeding	<ul style="list-style-type: none"> • Ideally alternative form of feeding is in place by this stage • Review swallow safety • Teach caregivers safe feeding • Describe chest infection
3- Primary nutrition is tube feeding with occasional oral feeds	Continue to monitor swallow and advise on safety of oral feeding with G-tube/NG Moisten mouth for comfort

ALS Swallow Scale Rating	Treatment
2- No oral feeding	<ul style="list-style-type: none"> • Review of saliva management • Glycopyrronium vs hyoscine • Oral hygiene
1- Aspiration of secretions	<ul style="list-style-type: none"> • Facilitate jaw opening • Therabite • Saliva management • Portable suction


Controlling Saliva

- Drooling
 - Medications
 - Suction Machines
 - Botulinum toxin injection
- Thick Secretions
 - Dehydration



Possible Swallow Techniques

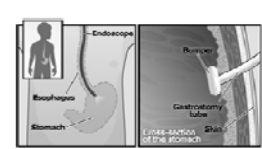
- Compensatory
- Reflux management
- Dietary changes
- Swallow exercises?



Morris et al., 2006. Cochrane Database Syst Rev. 2013 May 31:

PEG tubes and ALS

- Stabilize body weight for individuals with dysphagia
- No consensus for Indications and timing
 - Before body mass index is less than 18-18.5
 - Before body weight loss reaches 10%
- Possibly prolongs survival



Miller, R.G. et al (2009). Neurology 13: 73(15): 1218-1226
Image: <http://www.safefoodhealth.org/Health/digestion/ChildsHealth/Article/72014>

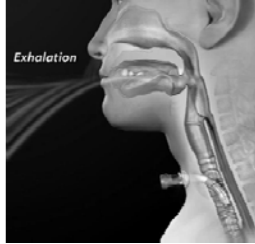
ALS Severity Scale Speech

Speech	Ability	Points
Normal speech processes	Normal	10
	Nominal abnormalities	9
Detectable speech disturbances	Perceived speech changes	8
	Obvious speech abnormalities	7
Intelligible with repeating	Repeats message on occasion	6
	Frequent repeating required	5
Speech combined with nonverbal communication	Speech plus nonverbal communication	4
	Limits speech to one word response	3
Loss of useful speech	Vocalizes for emotional expression	2
	Nonvocal	1

Miller AD Miller RM et al. Amyotrophic Lateral Sclerosis Severity Scale. Neuroepidemiology. 1989; 8: 143-150

Passy-Muir Valve Candidates

- Early and mid-stage of the disease process
- Assess speech and swallow function
 - ALS Severity Rating of 3-10
 - ALS Severity Rating of 2/3-10



Common Speech Pattern

Mixed Dysarthria- usually Flaccid and Spastic

- Phonation
- Respiration
- Resonance
- Articulation
- Prosody

Speech Therapy

- Regular assessment (i.e. every three to six months)
- Generally compensatory strategies



Andersen, P.M., et. al. (2007). Amyotrophic Lateral Sclerosis, 8(4), 195-213

Speech Techniques

- No detectable speech disorder (9-10)
 - Provide education about communication deficits
- Mild but obvious speech disorder(6-8)
 - Provide speaker and listener strategies
 - Voice amplifier
- Moderate(4-5)
 - Strategies to increase or maintain intelligibility
 - AAC in place
- Severe (1-3)
 - AAC as primary means

Speech Techniques

- Maximize intelligibility
- Conservation of energy



End Stage ALS and PMV

- May not be candidates for the PMV, particularly bulbar ALS
 - ALS Severity Scale Swallowing of 1
- Poor oral motor strength/ROM
 - ALS Severity Scale Speech of 1-2



Photo courtesy of Tobii

Augmentative and Alternative
Communication (AAC)

- Voice banking
- Low and high tech communication
- Eye-gaze devices



Eye-Gaze Communication



ALS Clinics

Team Members	
Neurologist	Pulmonologist
Nurse	Gastroenterologist
Physical Therapist	Mental Health Professional
Occupational Therapist	Respiratory Therapist
Speech and Language Pathologist	Social Worker
Nutritionist	

www.alsa.org www.mdalsa.org

Case Study

Upon Admission

- 45 year old male
- Spinal ALS
- Trach x2 weeks
- Continuous Positive Airway Pressure
- Nil by mouth with gastrostomy tube since trach inserted

Upon Discharge Home:

- Valve tolerated all waking hours
- Weaned to trach collar
- Speech Severity Scale: 5
- Swallow Severity Scale: 6

Additional Educational Opportunities

- Self-study webinars available on demand
 - Getting Started
 - Ventilator Application
 - Swallowing
 - Pediatric
 - Special Populations
- Live group webinars
- www.passy-muir.com
- Passy-Muir Inc. is an approved provider of continuing education through ASHA , AARC, and California Board of Nursing Credit

Presenter



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 - ep.passy-muir.com
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Videos

- <http://passy-muir.com/als>