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ALS Series Part 1: Medications and Oral Care

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Moderated by:
Amy Natho, MS, CCC-SLP, CEU Administrator, SpeechPathology.com



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ALS Series Part 1: Medications and Oral Care

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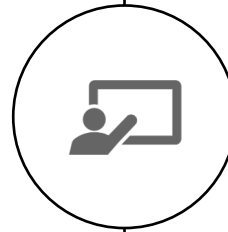
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Agenda Part 1, 2, 3

• **Part One – Medications and Oral Care**

- Medications and CAM
- Saliva Management and Strategies
- Mouth care

• **Part Two - Pros and Cons of Exercise**

- Role of Therapeutic Exercise

• **Part Three – Impact on Nutrition**

- Nutrition
- Diet Recommendations
- Pro's and Con's of PEG use

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CONTINUED[®]

continued

Learning Outcomes

After this course, participants will be able to:

- Describe rationale and list side effects of medications/complimentary alternative medicine for ALS.
- Identify strategies to manage secretions.
- Explain how to educate patients and families about the importance of mouth care

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continued

ALS

ALS is one of the progressive, debilitating neurodegenerative diseases.

Speech pathologists should be aware of medications and complimentary alternative medicine (CAM), saliva management strategies and importance of mouth care.

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ALS ⁽¹⁾

Jean Martin Charcot, French physician

- 1874 - 1st linked symptoms to group of nerves specifically affected
- housemaid dx w ALS
- observed clinical manifestations
- observations and descriptions still accurate today

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Neurons

- facilitate neurotransmission
- maintain metabolic needs

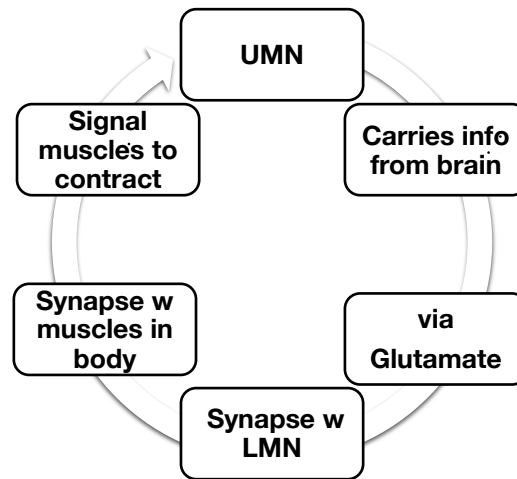
Larger myelinated neurons

- high energy requirements
- most vulnerable
- larger area for exposure to environmental toxins

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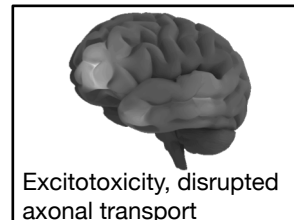
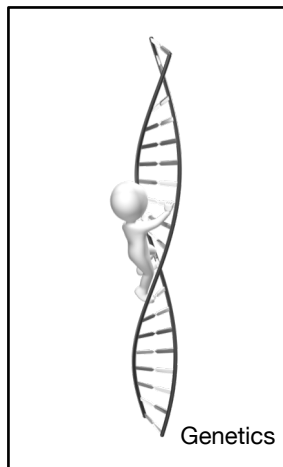
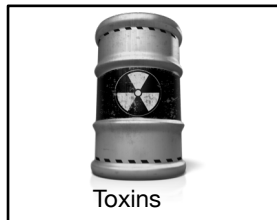
ALS



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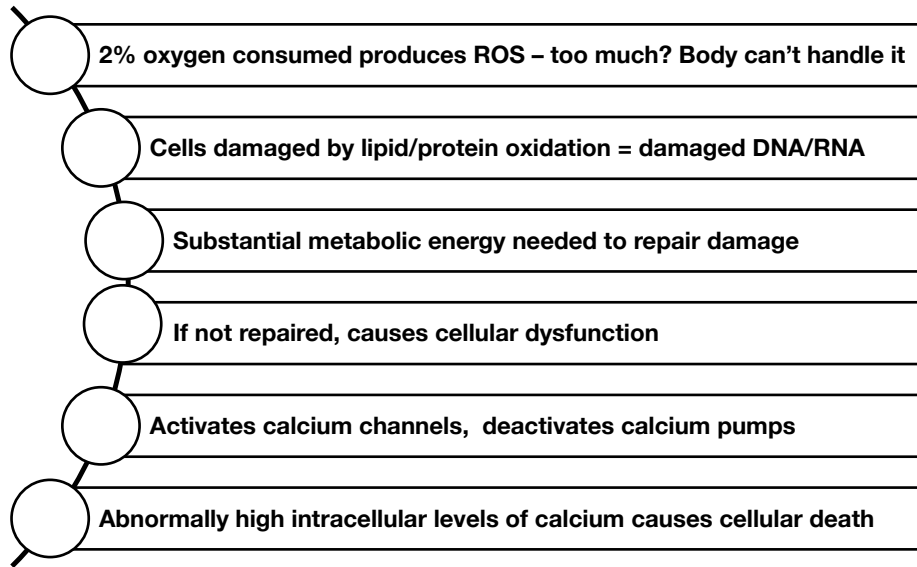
WHY ALS?



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Supplements & Medications

iMedicalApps:

- Natural Medicines Comprehensive Database app
- provides info on efficacy, safety, drug-supplement interaction
- *if* verified by USP - United States Pharmacopeial Convention
- 1,100 + supplement ingredients & thousands of combination OTC products

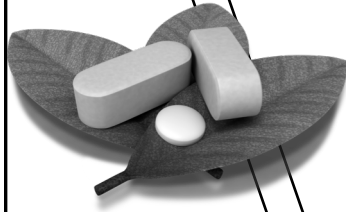
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Vitamin/Mineral Supplements – Only Studied Creatine and Vitamin E ⁽²⁾

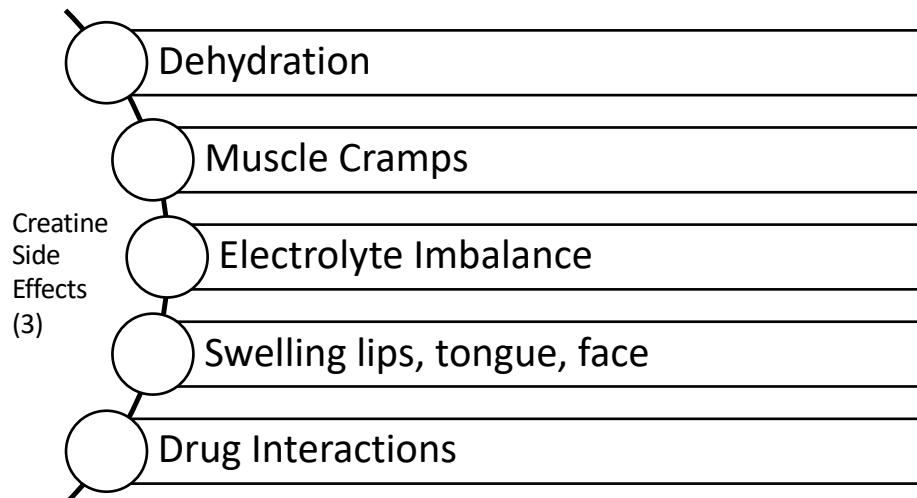
Creatine

- Naturally produced in kidney, liver, pancreas
- Must drink plenty of fluids
- 10 g/day & 5 g/day dose
 - failed to alter survival or rate of functional decline in ALS pts.



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continued



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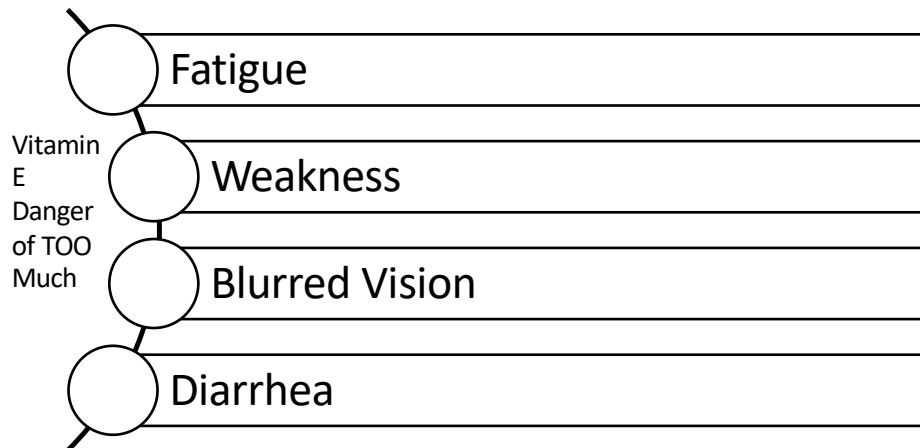
Vitamin E ⁽²⁾

- 2 studies failed to find benefit in pts treated w Riluzole
- 5,000 mg/day vitamin E plus Riluzole vs. Riluzole alone
- **no** change found in survival or functional outcomes



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Medications?

Drugs and Dysphagia



EMR

WebMD

RXList

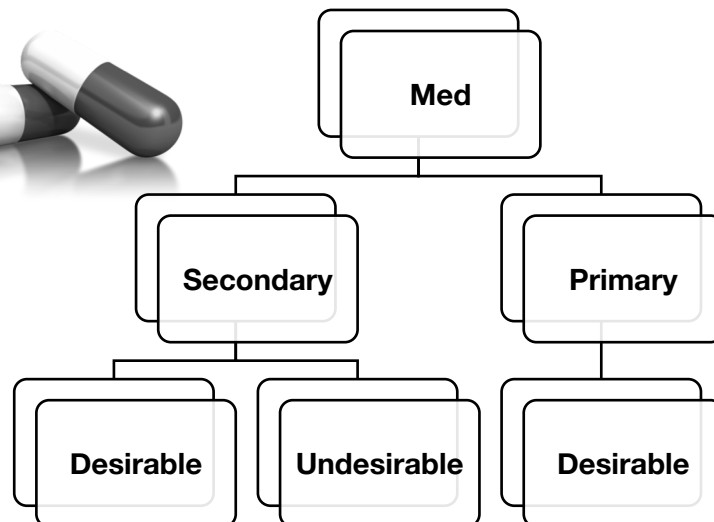
Medscape.com and Drugs.com

Drug Interaction Checker

Herbs, prescriptions, over the counter (OTC)

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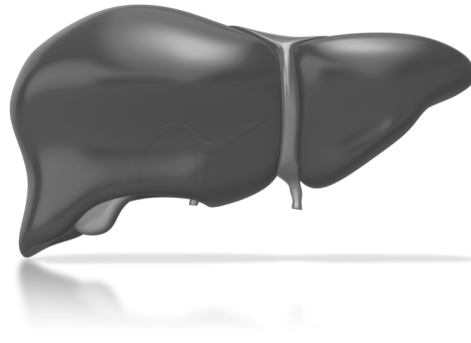
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Meds travel from GI system to liver through portal vein

First Pass Metabolism

Metabolism

- Greatly reduces circulatory concentration
- Drugs w 1st pass metabolism given in high oral doses to be effective



Enter circulatory system

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CONTINUED

Stem Cell Tx⁽⁴⁾

- Stem cell therapy
 - Damaged cells repaired/replaced by stem cells
- When healthy cell becomes diseased
 - Proper cell function affected and might result in cell death
 - Such cells selectively recovered by stem cells
 - Regular function of cell is retained
- Significantly slow disease progression and prolong survival in animal models of ALS

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continued

Meds

Riluzole

(REAL-u-zole) ⁽⁴⁾

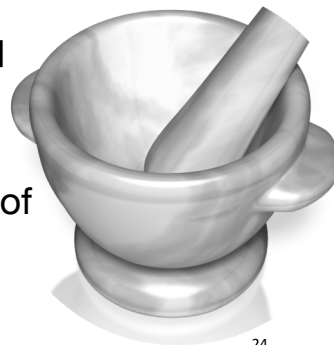
- Only med w modest effect on disease progression
- 1st tx to alter course of ALS
- Marginally slows down ALS in some pts.
- Higher death rate if not treated w Riluzole
- May d/c Riluzole d/t inability to swallow tablet form ⁽³⁾

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continued

Riluzole

- Alter med for ease of swallow as dysphagia worsens?
 - Crushed and dispensed w food
- NOT in line w label instruction
 - No data re: efficacy and safety of crushed tablets

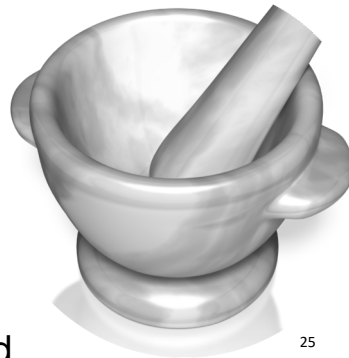


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continued

Riluzole

- Anesthetic effects
 - Partially blocks sodium channels
 - Tablet coated to avoid oral paresthesia
- Crushing impairs swallow
 - Creates laryngeal sensory deficits
 - Increased aspiration risk ⁽⁵⁾
- Anesthetic effect prolonged if dispersed in food
 - Pts. usually require extended meal time



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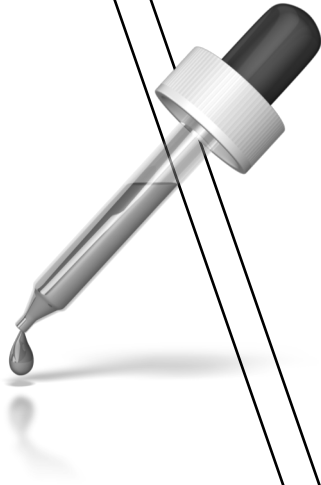
Riluzole

- Only very slightly soluble in w
 - Difficult to achieve solution w crushed tablets
 - Anesthetic effect on tongue
- Riluzole mixed w yogurt
 - Potential micro-aspiration of particles
 - Increased risk of respiratory infections
- May block peg tube ⁽³⁾



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Liquid Med?



- Oral suspension – Tiglutik®
- More rapid absorption
- Allow pts. to continue Riluzole tx longer
- Minimal anesthetic effects ⁽³⁾

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Riluzole ^{(6) (2)}

- Antiglutamate drug
- Med possibly inhibits glutamate processes
 - Prolongs life a few months
 - Progression slowed
- Longer time @ higher functioning state

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Riluzole ^{(6) (2)}


- 50 mg BID dose
- For ALS pts.
 - less than 5 yrs. duration
 - forced vital capacity (FVC) >60%
 - w/out trach ⁽⁷⁾

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continued

Riluzole

- 100 mg/day dose
 - Significantly less likely to experience trach
 - Extended survival by 4-19 months
- Mean time from dx to noninvasive ventilation or PEG significantly longer if receiving Riluzole
- Survive 12 months longer w Riluzole ⁽³⁾



Riluzole ⁽⁸⁾

- Strict monitoring of liver enzymes
 - d/t elevation of serum alanine aminotransferase
 - 10% to 15% of pts.
- May cause neutropenia
 - significantly reduced neutrophils
 - white blood cell essential to fight infections
 - manufactured in bone marrow

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continued

Riluzole Side Effects (3)

- ☐ **Asthenia/Weakness**
- ☐ **Nausea**
- ☐ **Abnormal Liver Function**
- ☐ **Reduced Lung Function, Bronchitis, Apnea**
- ☐ **Dysphagia**
- ☐ **Neutropenia**

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continued

Riluzole w Lithium carbonate

(2)

Riluzole & lithium carbonate vs. only
Riluzole (16 pts.)

- Lower mortality & slower progression w lithium carbonate
- Small sample size, design issues, lack of adequate blinding
- Insufficient data **at this time** to support or refute tx w lithium carbonate in ALS pts

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continued

Medications and Potential Side Effects

Bronchial Secretions/Congestion Meds:

- Difficulty breathing
- Face, lips, tongue throat swelling
- Blurred vision
- Change in taste

Tremor Meds:

- SOB
- Face, lips, tongue, throat swelling
- Severe skin reaction

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CONTINUED

Medications and Potential Side Effects

Spasticity Meds:

- Drowsiness
- Confusion,
- Unusual muscle weakness
- Blurred vision

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CONTINUED

Emotional Lability

- Lithium
 - Blurred vision
 - Drowsiness
 - Muscle weakness
 - Tremor
 - Lack of coordination
 - Ringing in ears
- Some **serious!**
 - **swelling of face, lips, tongue, throat**
 - difficulty breathing ⁽⁹⁾

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CONTINUED

Emotional Lability

- Combo of dextromethorphan and quinidine may be beneficial
- Limited by side effects
- Fluvoxamine, amitriptyline and citalopram can benefit ⁽⁹⁾

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CONTINUED

Cramping ⁽⁹⁾

- Diazepam - muscle spasms
 - Avoid grapefruit and grapefruit juice*
 - Urinary retention
 - Tremor
 - Confusion
 - Depression
 - Hostility
- Quinine sulphate 200 mg
- phenytoin, carbamazepine and benzodiazepines

Treat w massage and therapy

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Spasticity⁽⁹⁾

- Physiotherapy & hydrotherapy
- Baclofen and tizanidine effective pharmacologic agents
- **Diazepam** – spasticity
 - Confusion
 - Drowsiness
 - Unusual muscle weakness
 - Blurred vision

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Pain⁽⁹⁾

Analgesics

- Paracetamol

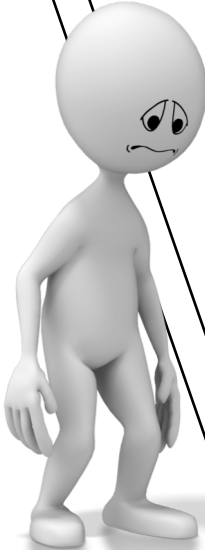
Weak opioids

- Tramadol

Strong opioids

- morphine
- ketobemidone

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Depression ⁽⁹⁾

- Ssri's (Selective serotonin reuptake inhibitors)
 - Most commonly prescribed antidepressants
 - helpful for more protracted depression
- Tx w benzodiazepines or bupropion
- Pseudobulbar affect handled w antidepressants - Nuedexta[®] (dextromethorphan and quinidine)

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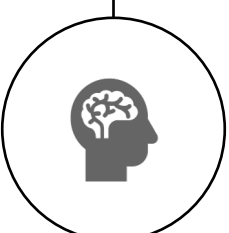
Meds for Anxiety and Side Effects

Diazepam (anxiety, muscle spasms)

- Avoid grapefruit and grapefruit juice*****
- Tremor, urinary retention, confusion, depression, hostility

Midazolam

- Sedation, hostility, confusion, blurred vision
- Avoid grapefruit or grapefruit juice*****



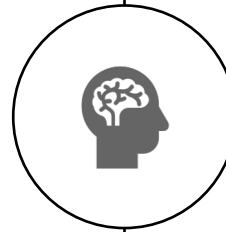
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Meds for Anxiety and Side Effects

Chlorpromazine (antipsychotic)

- Twitching
- Uncontrollable movements of eyes, lips, tongue, face, arms, legs
- Urinary retention
- Pneumonia
- Heart failure
- Sudden death in dementia related conditions



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CONTINUED

Cognitive Impairment

Cognitive impairment significantly increases caregiver burden

- Difficult to manage

Small # of studies re: pharmacological treatment of FTD

Off label use of meds more commonly include

- donepezil
- rivastigmine
- galantamine
- memantine

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CONTINUED

CONTINUED

Cognitive Impairment d/t Fronto-temporal dementia

- SSRI's for aggression, agitation, disinhibition and depression
- well tolerated, currently drug of choice for behavioral control
- Nocturnal agitation tx w low dose of
 - olanzapine
 - risperidone
 - quetiapine
- Recommend co-management w neuropsychiatry ⁽⁹⁾

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CONTINUED

Dysphagia and Saliva Management ⁽¹⁰⁾

- Drooling in 1/2 of pts d/t progressive swallow problems and decreased saliva control
- Excessive poorly controlled saliva may lead to
 - aspiration pneumonia
 - less tolerant of noninvasive ventilation
- Anticholinergic drugs effective in 70%+/- w mild/ mod. drooling
 - usually severe adverse effects
 - blurred vision and constipation w higher dosages

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continued

Meds for Excess Saliva and *Side Effects*

Propantheline before meal

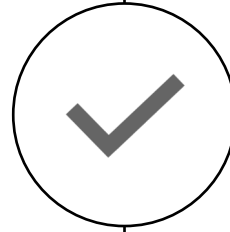
- *Dry mouth, blurred vision*

Nortriptyline (Pamelor) at bedtime

- *Blurred vision, decreased urinary output, dry mouth*

Scopolamine patch

- *Drowsiness, blurred vision, muscle weakness, SOB*



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continued

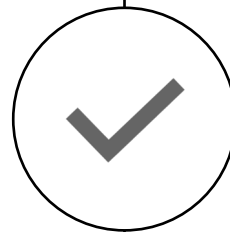
Meds for Excess Saliva and *Side Effects*

Glycopyrrolate

- *Muscle weakness, difficulty breathing, dry mouth, constipation, decreased urination, unusual weakness*

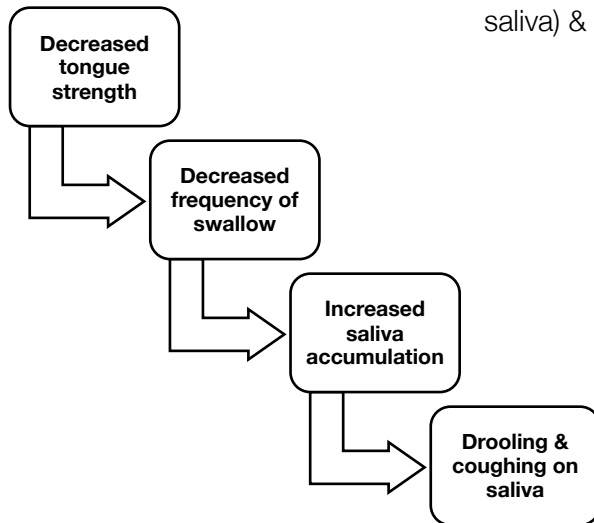
Amitriptyline (Elavil) 3 x day or bedtime

- *Tardive dyskinesia, dry mouth, blurred vision, constipation, urinary retention*



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continued



Sialorrhea (drooling/excessive saliva) & Bronchial Secretions (9)

- Distressing to pts
- Increased risk of oral infections
- Assoc. w dysphagia, failure to effectively handle secretions
- Can be difficult to manage

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continued



Spray N Swallow, Oral flo pill cup, Pill Glide

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continued


continued

Dysphagia and Saliva Management

(10)

- Botox or radiotherapy applied if drooling is severe complaint
 - Both reduce saliva production, induce viscous saliva and xerostomia
- Mixed opinions!
 - Botox preferred option
 - Some studies prefer radiotherapy
- Oropharyngeal function decreased after Botox injections but not after radiotherapy

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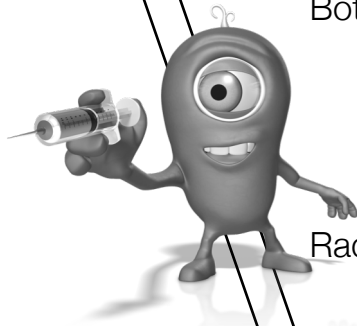
○

Botox vs. Radiotherapy for Drooling

- No significant differences
- Radiotherapy achieves more saliva reduction
 - both parotid glands
 - part of submandibular glands (10)

continued

Botox vs. Radiotherapy for Drooling



Botox injected in parotid glands only

- risk of increased oropharyngeal weakness
- pts w lower motor neuron (LMN) involvement received lower dose d/t risk of diffusion into nearby muscles

Radiotherapy

- more saliva reduction w accompanying negative experiences directly after
- without risk of long lasting decrease of bulbar functions ⁽¹⁰⁾

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continued

Radiotherapy Side Effects

(10)

- Viscous saliva
- Pain in mandible/throat
- Loss of voice
- Swallow more difficult
- Swollen glands
- No or very little saliva
- Dry mouth

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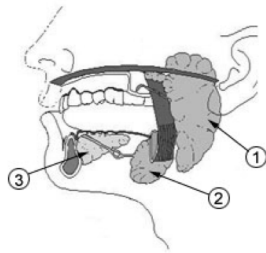
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Botox Side Effects ⁽¹⁰⁾

- Painful injection
- Viscous saliva
- Dry mouth



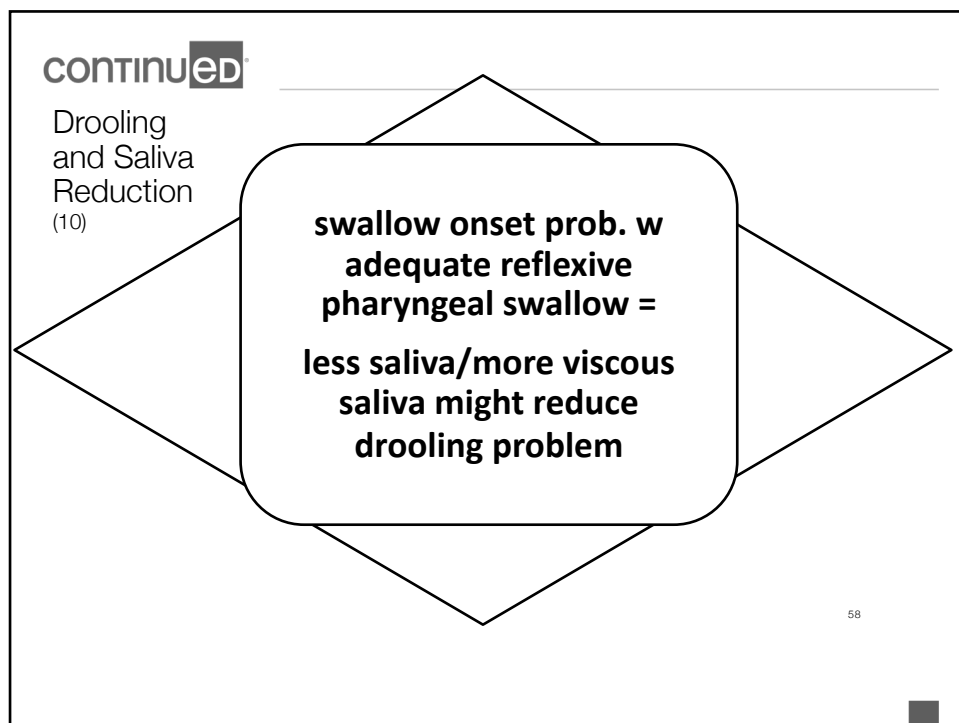
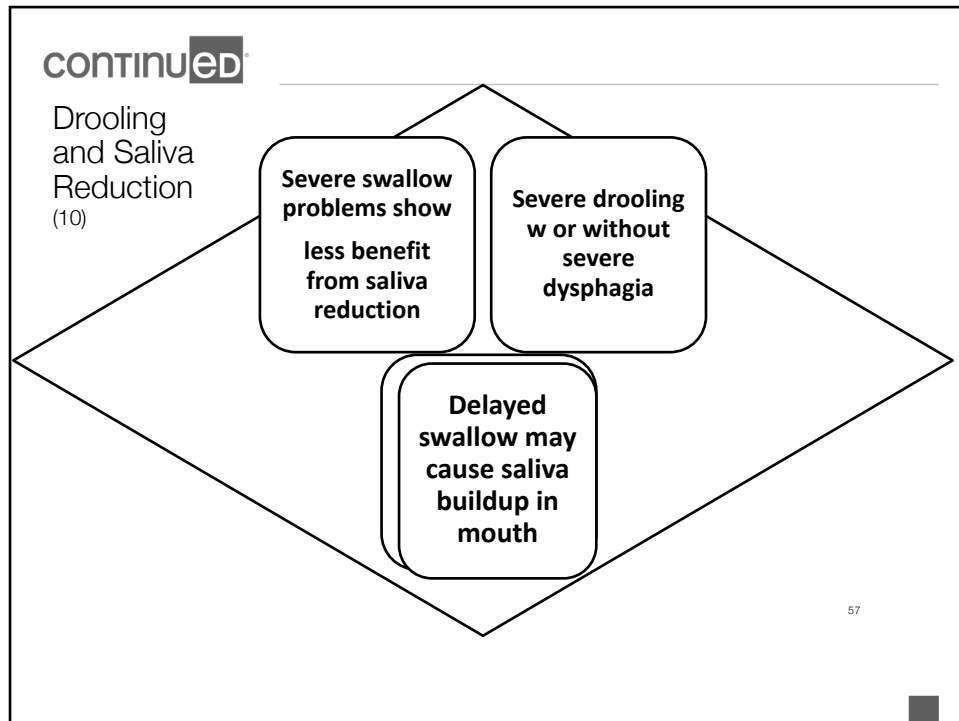
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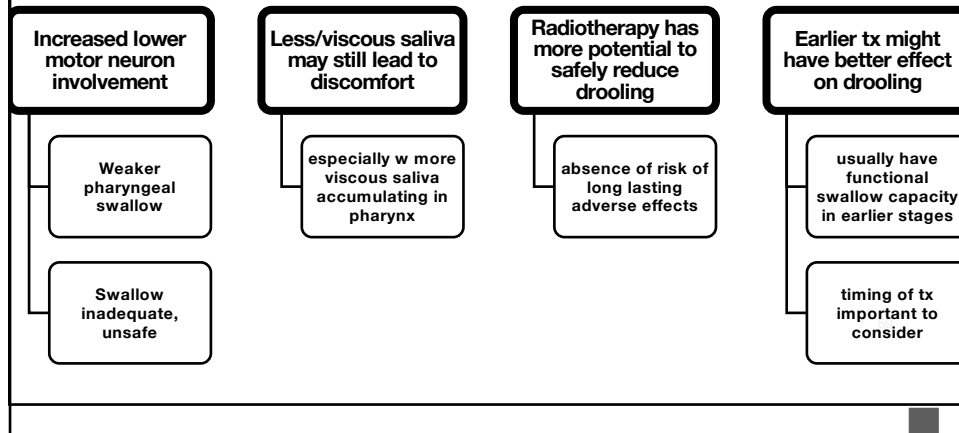
http://training.seer.cancer.gov/ss_module_06_head_neck/unit02_sec14_quiz_match_02.html

- 1 - Parotid gland
2. Submandibular gland
3. Sublingual gland

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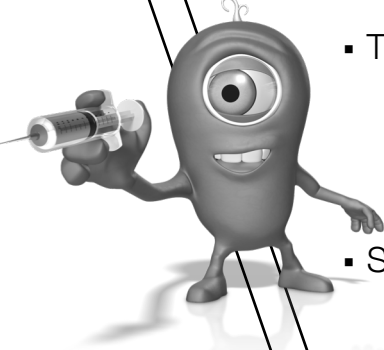


Saliva and Drooling ⁽¹⁰⁾



Saliva Scales ⁽¹⁰⁾

- Sialorrhea Scoring Scale (SSS)
- Oral Secretion Scale (ORS)
- Clinical Saliva Scale for MND (CSS-MND)



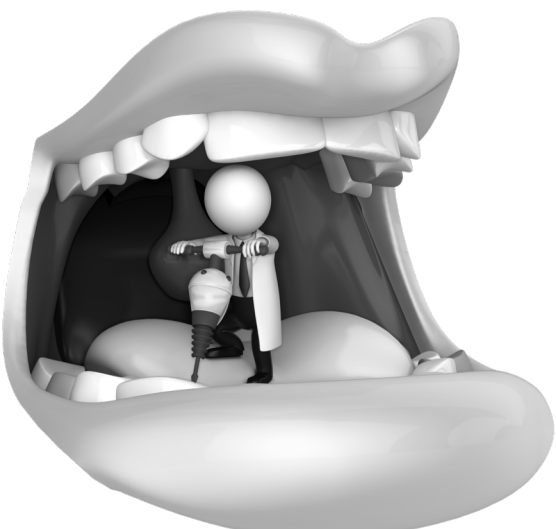
Sialorrhea (drooling/excessive saliva) ⁽⁹⁾

- Suction machine
- Treatments
 - Amitriptyline – 25 - 50 mg
 - Oral or transdermal hyoscine
 - Atropine drops or glycopyrrolate
- Severe Sialorrhea
 - Botox
 - Salivary gland irradiation


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continued

Mouth
Care




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ALS and Oral Health ⁽¹⁾

- Insufficient oral health & mechanical ventilation increases risk for life threatening pneumonia
- Risk reduced w preventative oral hygiene
- Oral health care transition to caregiver as disease progresses
 - dental hygiene pivotal to pts. well being
- BiPAP®, trach, direct mechanical ventilation have profound effects on oral cavity & ability to maintain dental health
- Pt. condition rapidly changes

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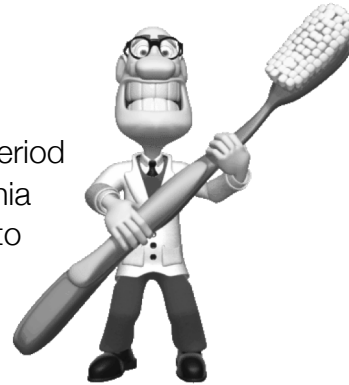


Oral Health ⁽¹⁾

- Recent literature supports association between respiratory disease and oral health
- Oral cavity harbors infectious respiratory pathogens

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- 2001, nine-year study (358 veterans) noted significant aspiration pneumonia risk factors
 - dental decay
 - presence of cariogenic bacteria (disease carrying bacteria)
 - periodontal pathogens
- 189 elderly observed over four-year period
 - decayed teeth \Rightarrow pneumonia
 - dependence on caregivers linked to pneumonia



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Oral Health (1)

- Study linked higher plaque scores w previous hx of respiratory tract infections
- Periodontal disease moderately associated w atherosclerosis, myocardial infarction and cardiovascular disease
- COPD risk significantly elevated w severe periodontal attachment loss
- Poor oral hygiene and periodontal disease foster oropharyngeal colonization of respiratory pathogens
 - increase probability of aspiration pneumonia, especially in high-risk pts.



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continued

Oral Health ⁽¹⁾

Effectiveness of mechanisms further impaired by

- Advanced age
- Residing in NH or hospital
- Debilitated state

Breathing/voluntarily exchange (oxygen/carbon dioxide) become difficult in advanced stages resulting in respiratory distress

Symptoms:

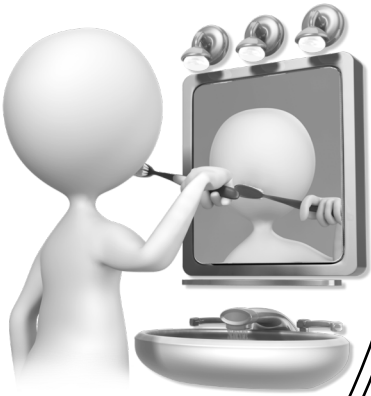
- Headaches upon waking
- Physical exhaustion
- Labored breathing
- Inability to cough or speak long sentences

Oral Hygiene

- Standardized oral hygiene protocols
 - Effectively decrease dental bacteria colonization assoc. w respiratory pathogens causing pneumonia
- Two most effective modalities
 - Mechanical toothbrushing
 - Chlorhexidine mouth rinses
- AFTER implementation of oral care protocol
 - 46% reduction in ventilator-associated pneumonia during 12-month period (2009 study)
- Study results confirmed w ICU pts. AND NH residents ⁽¹⁾




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Mouth Care and Aspiration Connection

- Risk Factors Associated w AP
 - # of decayed teeth
 - Occasional/no teeth brushing
 - Dependent for oral care
 - Tube feeding promotes colonization from reduced salivary flow
- ****BEST predictor in oral feeders w teeth: Dependent for oral feeding & multiple medical diagnoses**



Mouth Care and Aspiration Connection

Increased risk w

- # of meds
- Weight loss
- UTI's
- Over age 85

AP caused almost entirely by periodontal bacteria!

- Produce high levels of methyl mercaptan on tongue – chief cause of halitosis

continued

Mouth care Protocol!

Improved hygiene/frequent professional oral health care reduced AP **40%** in high risk elderly

- Intensive oral care may reduce AP by **improving cough reflex sensitivity** in elderly NH pts. (11)

Don't forget tongue!

- Scraping or brushing
- Mouthwash to brush tongue rather than gels or toothpaste
- Able to get in crevices of tongue



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continued

Daily Mouth Care (12)

- Brush natural teeth 2x day w fluoride toothpaste
- Daily oral care for full/partial dentures
- Remove dentures overnight
 - 2-3 x higher risk of pneumonia
 - Sleeping w dentures increases tongue/denture plaque, gum inflammation, thrush
 - Use denture cleaning products
- Manual or electric toothbrush
- Plak vac toothbrush

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continued Staff Responsibilities....

Know.... (12)

- How residents manage daily mouth care
- Need for support
- Mark dentures
- ID name of dentist, last dental treatment
- Importance of oral health, effect on general health
- Potential impact of untreated dental pain/infections
- How to deliver daily mouth care
- How/when to report oral health concerns



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continued

Dentition Status?

- Minimum Data Set
- Oral Mech Exam
- Oral Health Assessment Tool – OHAT
- <http://www.halton.ca/common/pages/UserFile.aspx?fileId=15348>
- www.healthcare.uiowa.edu/igec/tools/oralhealth/OHAT.pdf
- Bissett, S., & Preshaw, P. (2011). Guide to providing mouth care for older people. Nursing Older People, 23(10), 14-21. *****
- [Www.cda-adc.ca/_files/dental_profession/practicing/best_practices_seniors/ohat_tool_halton_2007_10.pdf](http://www.cda-adc.ca/_files/dental_profession/practicing/best_practices_seniors/ohat_tool_halton_2007_10.pdf)

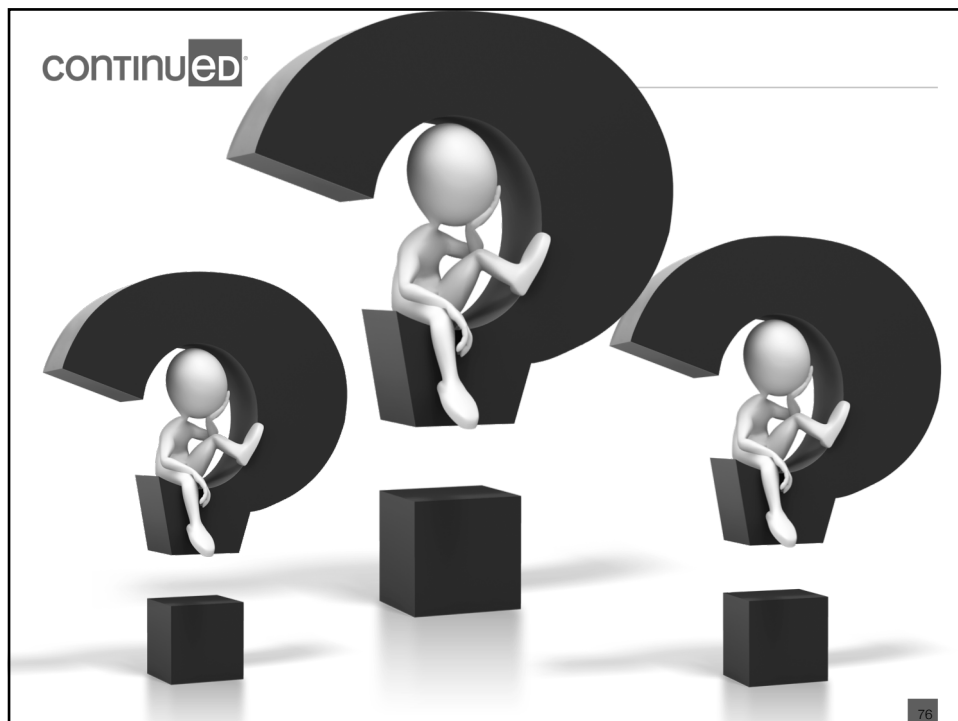


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Remember the M's!

- Medications
 - Traditional prescription meds
 - CAM – complimentary alternative medicine
 - Saliva management medications
- Mouth Care
 - Important no matter what the disorder or disease process
 - Know your resources!
 - Guide to providing mouth care for older people. Nursing Older People
 - OHAT

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Thinning Secretions

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continued[®]

- **Adolph's Cocktail**

- ¼ tsp. Adolph's meat tenderizer
- 4 ounces orange juice
- 30 minutes prior to meal
- Breaks down mucous

Medications

Excess Secretions

- **Guaifenesin** – pure expectorant cough medicine **Increases** salivary flow
- **Potassium iodide**
 - Mild irritant of mucosal surface
 - **Increases secretions and thins**
 - 2 wks. to see difference
- **Papase** - Enzyme in papaya; thins out secretions
- **Meat tenderizer**
 - Cotton swab to mouth
 - Dissolution of thickened secretions
- **Papaya juice, apple juice, tea w lemon, club soda, hot peppermint tea, water**
- **Inhale essential oils – peppermint, eucalyptus, rosemary and tea tree**