Nutritional Considerations in ALS

Guest Speaker:
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Nutritional Considerations in ALS

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Why is Food so Important?

• Social
• Emotional
• Culture
• Religion
• Physical
Why is Nutrition Important in ALS?

• **Nutrition**: independent risk factor for disease progression
  – Calories to maintain weight. Resting energy expenditure known to be higher in ALS.
  – Adequate nutrition necessary to maintain highest possible level of function
Why is Nutrition Important in ALS?

- Improved endurance
- Protect body from infection and illness
- Preserve enjoyment of food and maintain socialization
ALS COSMOS Study

- Amyotrophic Lateral Sclerosis Multicenter Cohort Study of Oxidative Stress
- 302 patients
- Modified Block Food Frequency Questionnaire,
- Function was measured using the ALS Functional Rating Scale–Revised (ALSFRS-R)
- Respiratory function was measured using percentage of predicted forced vital capacity (FVC).
Macronutrient intake did not impact ALSFRS-R score or percent FVC.

Milk was negatively associated with ALSFRS-R and FVC, but milk-based supplements slowed functional decline/stabilized weight in another study. *

Regression analysis of “good food groups” showed that eggs, fish, poultry, nuts and seeds, beneficial oils, fruits and vegetables in general were positively associated with ALSFRS-R scores and percent FVC.

Good micronutrient intake was positively associated with ALSFRS-R scores and percent FVC.

Key micronutrients:
- Carotenes- carrots, pumpkin, sweet potato, broccoli, spinach
- Lycopene—strong antioxidant properties. It’s the pigment that gives red and pink fruits, such as tomatoes, watermelons and pink grapefruit.
- Fiber from vegetables and grains.

ALS COSMOS

- Omega-3 fatty acids-oily fish, tuna, mackerel, herring, nuts and seeds (walnuts, chia seeds, flaxseeds), oils (flaxseed oil, canola oil) and fortified eggs, milk, soy milks.
- Omega-6 fatty acids-soybean, corn, safflower, sunflower oil, nuts, seeds, meat poultry, fish, eggs.
- Isoflavones- Soy and its products, and legume seeds (lentils, beans, peas) are the richest sources of isoflavones, and fiber from vegetables and grains.
Fatigue and Poor Appetite

• Six small meals-reduce fatigue at meals and fuel body throughout the day
• Select foods that are easy to chew and swallow
• Drink supplements between meals
• Eat your favorite foods
• Cook aromatic foods/presentation/company
• Select calorie-dense foods
Fat calories can be Fab calories

• Protein – 4 kcal/g. Important to help maintain muscle mass.

• Carbohydrate – 4 kcal/g. Major source of energy in the average diet.

• Fat-9 kcal/g. Most calorie-dense nutrient. Increased circulating cholesterol may have neuro-protective benefits.

• Kasarskis equation [Maintaining Adequate Nutrition: A Continuing Challenge in ALS | The ALS Association]

• My Data Helps app, search for ALS Nutrition
Calorie-Dense Foods

• Add calories without volume with butter, cheese, gravy, cream, mayo, peanut butter, dressing, dips
• Whole fat dairy
• Ice-cream –yum!
• Casseroles
• Calorie containing beverages
• “Healthy”- olive oil, olives, nuts, nut butters, seeds, avocado, dried fruit
Food Preparation

• Occupational therapist recommends assistive devices/feeding assistance for those with UE weakness.
• Convenience meals
• Batch cook meals and freeze single serving portions
• Caregivers setting up snacks/beverages where they are accessible
• Meals on wheels
Protein Foods

- Protein requirements 1.2-1.5 g/kg
  - Meat
  - Fish
  - Eggs
  - Dairy (cottage cheese, Greek yogurt)
  - Nuts and nut butters
  - Seeds
  - Beans
Oral Nutrition supplements

- Ensure / Equate / Boost **PLUS** has 100 extra calories per serving
- Carnation Instant Breakfast
- Kate Farms / Enu
- Ensure Clear (juice)
- Lutrish shakes
- Benecalorie
- Homemade shakes
Brain Power Smoothie

- Ingredients:
  - 2 cups blueberries
  - 1 cup pomegranate juice (or any berry juice)
  - 1 cup ice cubes
  - 1 Tbsp. chia seeds
  - 1 ripe banana, peeled
  - half of an avocado, peeled and pitted

- Nutrition: 620 calories, 8 g protein, 20 g fat, 117 g carbohydrate, 22 g fiber
Dysphagia

- Coughing and/or choking on food or liquid while swallowing
- A wet or gurgling-sounding voice immediately after swallowing food or liquid
- Difficulty chewing
- Food escaping out of the mouth during chewing or liquid spilling from the lips
- Prolonged mealtimes
- The need for smaller bites and/or sips
- Difficulty managing saliva
- Shortness of breath during meals
Ways to Manage Dysphagia

• Swallow strategies under guidance of the Speech Therapist, Video Swallow Study
• Diet modification
• Dietary supplements
• Feeding tube placement
### Diet Modification

<table>
<thead>
<tr>
<th>Diet Level</th>
<th>Examples of Food</th>
</tr>
</thead>
<tbody>
<tr>
<td>Level 1: Pureed</td>
<td>Pudding, pureed oatmeal, bread, meats, hummus, pureed fruit and vegetables</td>
</tr>
<tr>
<td>Level 2: Mechanical Soft</td>
<td>Scrambled eggs, meatloaf, well-cooked vegetables, pancakes, mashed potatoes, canned/cooked fruit</td>
</tr>
<tr>
<td>Level 3: Advanced</td>
<td>Bread slices, muffins, pasta, casseroles, baked potatoes, soft/ripe fruits, fish</td>
</tr>
<tr>
<td>Level 4: Regular</td>
<td>No food avoidances or restrictions</td>
</tr>
<tr>
<td>Nectar Thickened Liquids</td>
<td>Slightly thicker than water</td>
</tr>
<tr>
<td>Honey Thickened Liquids</td>
<td>Consistency of honey at room temperature</td>
</tr>
</tbody>
</table>
Diet Modification

FOODS
- REGULAR
- EASY TO CHEW
- SOFT & BITE-SIZED
- MINCED & MOIST
- PUREED
- LIQUIDISED
- MODERATELY THICK
- MILDLY THICK
- SLIGHTLY THICK
- THICK

DRINKS

FOOD TEST INSTRUCTIONS
- PUREED
- EXTREMELY THICK
- MINCED & MOIST
- ADULT 4mm
- SOFT & BITE-SIZED
- THUMB NAIL BLANCHES WHITE
- EASY TO CHEW

Copyright: The International Dysphagia Diet Standardisation Initiative 2016
@ https://iddsi.org/framework/

https://iddsi.org/Resources/Patient-Handout
Regular Diet

- Sample Menu provides:
  - 1700 calories, 82 g protein, 25 g fiber
  - 20% of calories as protein
  - 53% of calories as carbohydrate
  - 27% of calories as fat

Breakfast
- 1 egg
- 1 cup bran cereal
- 1 cup skim milk
- 5 prunes

Lunch
- 4 oz salmon
- 1 cup brown rice
- 1 cup broccoli

Dinner
- 2 oz deli turkey
- 1 oz cheddar cheese
- 1 slice wholegrain bread
- Side garden salad (1.5 cups)
- 1 T Italian dressing
- 1 cup grapes

Snacks
- 1 medium apple
- 1 low fat yogurt

Beverages
- 34 oz Water
- 8 oz coffee with 2 oz skim milk
Pureed Diet

• Sample Menu provides:
  - 1750 calories, 85 g protein, 15 g fiber
  - 20% of calories as protein
  - 53% of calories as carbohydrate
  - 27% of calories as fat
• Note ↓dietary fiber and ↑saturated fat intake increased in order to meet calorie needs

<table>
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<tr>
<th>Breakfast</th>
<th>Lunch</th>
<th>Dinner</th>
<th>Snacks</th>
<th>Beverages</th>
</tr>
</thead>
<tbody>
<tr>
<td>1 egg pureed with 0.5 oz cheese</td>
<td>3 oz salmon pureed</td>
<td>1 cup canned mashed sweet potato with 2 T butter and 1 T brown sugar</td>
<td>1 cup Cottage cheese with ½ cup peaches and ½ cup fruit juice pureed</td>
<td>34 oz Thickened (Nectar Thick) Water</td>
</tr>
<tr>
<td>1 cup cream of wheat with 8 oz whole milk and cinnamon</td>
<td>1/2 cup pureed rice with ¼ cup chicken broth</td>
<td>1 cup canned mashed sweet potato with 2 T butter and 1 T brown sugar</td>
<td>1 cup Cottage cheese with ½ cup peaches and ½ cup fruit juice pureed</td>
<td>6 oz coffee with 2 oz whole milk (Nectar thick) Ensure Plus (350 kcal, 13 g protein)</td>
</tr>
<tr>
<td>6 oz prune juice</td>
<td>1/2 cup broccoli pureed with 1 tsp olive oil</td>
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</tbody>
</table>

• Note ↓dietary fiber and ↑saturated fat intake increased in order to meet calorie needs
Feeding Tube

- Indications for feeding tube placement:
  - Weight loss
  - Chewing/swallowing difficulties – Eating has become a burden
  - Prolonged mealtimes
  - Fatigue after meals
  - No appetite/no interest in food
  - Decline in respiratory function

- Maintain/supplement nutrition, hydration, alternate route for medications.
Benefits

• Promotes adequate intake of:
  – Calories, protein & fluid
  – Weight stabilization

• Decreased risk of aspiration
  – No choking, chewing & swallowing problems

• Improve quality of life

• Easy medication administration

• Feeding times=simple, shorter
  – Energy saved for other activities
Things to Consider….

• Placement
  – Sedation necessary
  – Infection risk

• After placement
  – Clogging may occur
  – Infection at feeding tube site
  – Replacement of tube
  – Daily care
  – Intolerance to tube feeding formula
How is it used?

- Syringe feeding
- Gravity feeding (IV pole and bags)
- Pump assisted feedings.

- Orders generally through DME provider.
- Insurance coverage varies.
Tell Your Patients About

The Oley Foundation

• FREE information and support for patients on home tube or IV feedings

• www.oley.org

• (800) 776-OLEY

• www.feedingtubeawareness.org
Hydration

• Increased risk for dehydration due to dysphagia and limited mobility
• Monitor urine concentration, bowel function
• Eat foods with a high water content e.g. canned and fresh fruit/vegetables, drinkable yogurt, pudding, juice, purees, cream soups, smoothies, nectars
• Straw, long straw, nosey cup
Constipation

• Inactivity, weakened abdominal muscles, insufficient fiber and fluid intake
• Increase fiber – fruit, vegetables, whole grains
• Increase fluids
• Prune Juice
• Laxatives and stool softeners
Move It!

- 1 Cup Unprocessed Bran (Store in freezer)
- 1 Cup Apple Sauce
- ½ Cup Prune Juice
- Mix together well-store in refrigerator (1-2 tablespoons per day – adjust as necessary)
Vitamin Supplements

- Vitamin D – study showed association between low levels and ALS. Screening for deficiency*.

- Multi-vitamin with minerals for general health. Should have the approval of US Pharmacopoeial Convention

- Coconut Oil

- www.ALSuntangled.com

Resources


