I HAD A STROKE, NOW WHAT DO I EAT?

Allison Kakabar MS, RD, LDN
DIETITIAN CONSULT DURING ACUTE STROKE

• What do we do?
  • Assess patient’s baseline
  • Pre-existing conditions
  • Normal oral intake
  • Usual body weight
  • Determine nutritional needs
  • Does stroke change energy needs?
    • 125% higher net energy expenditure during balance tasks
  • Prescribe diet and supplements
  • Assess nutrition status
STROKE AND NUTRITION STATUS

• Strong evidence supports that a large proportion of stroke patients do not meet their estimated energy requirements

• South London study showed intake during hospital stay was only 61% of estimated energy needs

• Cohort study of 100 acute stroke patients showed 33% of patients met <50% of estimated energy needs, with only 10% of patients meeting 100% of nutritional needs

• Study comparing energy intake in regular, dysphagia, and enteral tube diets found intake ranged from 80.3% to 90.9% of needs, with enteral tube diets providing the most
DYSPHAGIA

• 78% of stroke patients experience dysphagia
• Stroke can affect oral, pharyngeal, and esophageal phases of swallowing
• May initially require enteral nutrition
• Altered consistency diets and thickened liquids determined by Speech Language Pathologist
• Common problems include:
  • Poorly coordinated tongue movements
  • Weakened lip muscles
    • Inability to completely seal lips, form a seal around a cup, or suck through a straw
    • Drooling, which may cause embarrassment
DYSPHAGIA AND NUTRITION STATUS

• Concerns include:
  • Anorexia and weight loss given dislike of altered texture of food and/or fatigue from eating
  • Hospitalized stroke patients with dysphagia consume significantly less calories than stroke patients with no dysphagia
    • 25 kCal/kg considered adequate intake
    • Dysphagia: 8.6 +/- 5.0 kCal/kg
    • No Dysphagia: 16.1 +/- 5.4 kCal/kg
      • Only 8.3% of patients with no dysphagia met energy recommendations
  • Dehydration
    • Hospitalized stroke patients who receive thin liquids consume significantly more fluid than those who received thickened liquids however majority of both groups did not consume 1500 ml per day
      • Thin Liquids: 1237 +/- 442 ml/day
      • Thick Liquids: 947 +/- 144 ml/day
      • Community Dwelling Elders: 1961 +/- 529 ml/day
IMPROVING INTAKE ON DYSPHAGIA DIET

• Obtain preferences when able
• Increase flavor with seasonings, sauces, and gravies
• Offer more than water as a hydration option
• Small frequent meals
• Assistance with meals
• Limit diet restrictions as able
ORAL NUTRITION SUPPLEMENTS

- Used to help patients meet caloric and protein needs if not able to consume enough through food alone
- Is nutritional supplementation associated with better validated stroke outcomes?
  - Beneficial in malnourished stroke patients

<table>
<thead>
<tr>
<th>Number of Patients</th>
<th>Supplementation Type</th>
<th>Stroke Outcome</th>
</tr>
</thead>
<tbody>
<tr>
<td>48</td>
<td>250 kCal, 20 g protein daily</td>
<td>Improved MMSE score</td>
</tr>
<tr>
<td>42</td>
<td>250 kCal, 20 g protein daily</td>
<td>Improved NIHSS score</td>
</tr>
<tr>
<td>116</td>
<td>127 kCal, 5 g protein TID vs 240 kcal, 11 g protein TID</td>
<td>Improved FIM, 2 minute, and 6 minute walk tests in intensive group</td>
</tr>
</tbody>
</table>

- No benefit seen in well nourished patient
  - Feed Or Ordinary Diet (FOOD) Trial 1 found no absolute benefit of supplementation in risk of death or poor outcomes as measured by Modified Rankin Scale at 6 month follow up
DIET AFTER STROKE

• Goal: identify and treat risk factors to prevent further cardiovascular events

• Individualize

• Common Diets
  • Mediterranean
  • Dietary Approaches to Stop Hypertension (DASH)
MODIFIABLE NUTRITION RELATED RISK FACTORS

- Modifiable Risk Factors:
  - Hypertension
  - Hyperlipidemia
  - Uncontrolled Diabetes
  - Obesity

- How does what we eat or don’t eat increase the risk of stroke?
  - Excess sodium intake → Hypertension
  - Excess trans fat and/or saturated fat → Hyperlipidemia
    - Soluble fiber intake can help lower LDL cholesterol
MEDITERRANEAN DIET

- Emphasizes intake of a variety of fruits and vegetables and healthy fats while minimizing intake of high fat meats and added sugar.

<table>
<thead>
<tr>
<th>Food</th>
<th>Meta-Analysis: First Author, Year, Reference</th>
<th>+ (Inverse Association With Stroke Risk/ − (Association With Stroke Risk)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Fish</td>
<td>Chowdhury et al, 2012[7]</td>
<td>+</td>
</tr>
<tr>
<td></td>
<td>Xun et al, 2012[18]</td>
<td>+</td>
</tr>
<tr>
<td></td>
<td>Larsson et al, 2011[19]</td>
<td>+</td>
</tr>
<tr>
<td>Olive oil</td>
<td>Martinez-Gonzalez et al, 2014[20]</td>
<td></td>
</tr>
<tr>
<td>Tree nuts and peanuts</td>
<td>Afshin et al, 2014[21]</td>
<td>Not statistically significant</td>
</tr>
<tr>
<td>Legumes</td>
<td>Afshin et al, 2014[21]</td>
<td>Not statistically significant</td>
</tr>
<tr>
<td>Red and processed meat</td>
<td>Kaluza et al, 2012[22]</td>
<td>−</td>
</tr>
<tr>
<td>White meat</td>
<td>Bernstein et al, 2012[23a]</td>
<td>+</td>
</tr>
<tr>
<td>Alcohol</td>
<td>Zhang et al, 2014[24]</td>
<td>−</td>
</tr>
<tr>
<td>Dairy</td>
<td>Soedamah-Muthu et al, 2011[25†]</td>
<td>Not statistically significant</td>
</tr>
<tr>
<td></td>
<td>Hu et al, 2014[26‡]</td>
<td>+</td>
</tr>
</tbody>
</table>

*Pooled analysis found substituting red meat for white meat was associated with decreased stroke risk.
†Examined the association between red meat and stroke.
‡Total dairy consumption was inversely associated with stroke, but associations between different types of dairy products and stroke varied.
**DASH DIET**

- **Dietary Approaches to Stop Hypertension (DASH) Diet**
  - Focuses on fruit, vegetable, fat-free/low fat dairy, whole grains, nuts, and legumes
  - Limits saturated fat, cholesterol, red and processed meats, sweets, added sugar, salt, and sugar sweetened beverages
  - Maximum amount of 2300 mg of sodium recommended per day with note that 1,500 mg of sodium per day can reduce HTN even further

<table>
<thead>
<tr>
<th>Food Group</th>
<th>Daily Servings</th>
</tr>
</thead>
<tbody>
<tr>
<td>Grains</td>
<td>6-8</td>
</tr>
<tr>
<td>Meat, Poultry, and Fish</td>
<td>6 or less</td>
</tr>
<tr>
<td>Vegetables</td>
<td>4-5</td>
</tr>
<tr>
<td>Fruit</td>
<td>4-5</td>
</tr>
<tr>
<td>Low fat or fat free dairy</td>
<td>2-3</td>
</tr>
<tr>
<td>Fats and oils</td>
<td>2-3</td>
</tr>
<tr>
<td>Sodium</td>
<td>2,300 mg</td>
</tr>
<tr>
<td></td>
<td>*1,500 mg</td>
</tr>
<tr>
<td>Nuts, seeds, dry beans, and peas</td>
<td>4-5</td>
</tr>
</tbody>
</table>
FAD DIETS

- What are the key components or recommendations on the diet?
- Is the diet backed by research?
- When in doubt, consult or refer patient to Dietitian
CONCLUSION

• Majority of stroke patients do not meet nutritional needs
• Patients with dysphagia are at higher risk for dehydration and inadequate energy intake
• Diets need to be individualized based on swallowing function, nutritional needs, and risk factors with a focus on reducing sodium, saturated fat, and trans fat intake
REFERENCES


• McGrail A, Kelchner LN. Adequate Oral Fluid Intake in Hospitalized Stroke Patients: Does Viscosity Matter?. *Rehabilitation Nursing*. 2012; 37(5); 252-257. DOI:10.1002/rnj.023


