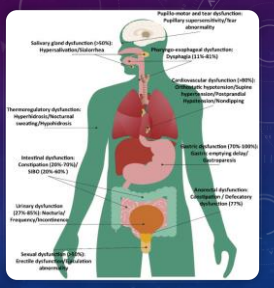


OVERCOMING GASTROINTESTINAL ISSUES WITH PD: DIET AND MOVEMENT

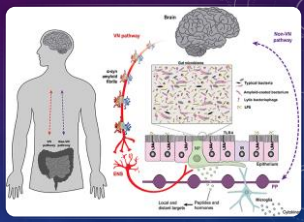
ODINACHI OGUH M.D



AUTONOMIC DYSFUNCTION

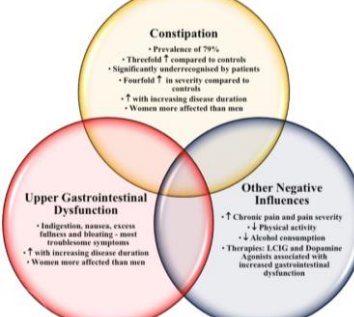


PATHOMECHANISM



- MULTIFACTED**
- reflected not only the involvement of the intrinsic innervation of the gut presence of synuclein pathology in the
- Enteric neurons produce a substantial amount of DA which regulates normal gut motility
- Interestingly, slowed GI transit and decreased gut contraction in PD patients occur via altered DA-ENS circuitry, which normally promotes the peristaltic reflex.
- Extrinsic inputs because of the presence of Lewy pathology in the dorsal motor nucleus of the vagus, sacral parasympathetic nuclei, and sympathetic ganglia

Andres-Roura Pagan, Bernat Auladell, Miquel Vila, Miquel Martí, Teresa Di Paolo, Denis Smith. Gastrointestinal Dysfunction in Parkinson's Disease: Diagnosis and Treatment. In: Parkinson's Disease: Diagnosis and Treatment. 2018. https://doi.org/10.1155/2018/1873288



GASTROINTESTINAL SYMPTOMS

UPPER GASTROINTESTINAL SYMPTOMS

Dysphagia → defines swallowing disorder

Changes associated with neurodegenerative disease can affect every stage of the swallow

Changes occur because of decreased force of movement, decreased range of motion, slowness of movement and a decreased ability to adapt to changes in volume and consistency of foods and liquids, as well as changes in reflexes involved in swallowing and airway protection

Dysphagia has real health consequences → weight loss, reduced quality of life, and aspiration pneumonia

Dysphagia can also be linked to social isolation

LOWER GASTROINTESTINAL SYMPTOMS

Abdominal pain or discomfort

Bloating or distension

Diarrhea

Constipation

Accidental stool leakage or incontinence

Problems in the passage of food or stool

Any combination of these symptoms

HISTORICAL CONSIDERATIONS

Coughing while or shortly after eating	Brooding
Gurgly or "wet" vocal quality	Losing food or liquids from the mouth
Excessive watery eyes, nasal drainage, sneezing at meals	Frequent heartburn
Difficulty chewing	Complaints of food getting "stuck" or difficulty with certain consistencies, complaints of globus (lump in throat)
Needing to swallow many times per bite or sip	Anxiety / Agitation while eating
Food remaining in mouth after swallowing/difficulty clearing food from sides of mouth	Unplanned weight loss
Taking longer and longer to finish a meal	Difficulty swallowing pills

DYSPHAGIA

UPPER GI SYMPTOMS

Slowing down and reduction of the swallow response, resulting in drooling or repeated swallows being required in early stages of disease .

may worsen, which can be silent (not noticed) or associated with coughing, choking, or pneumonia.

Stomach specific symptoms include bloating, indigestion, and early satiety, which typically reflect delayed stomach (gastric) emptying, sometimes known as gastroparesis.

GASTROPARESIS

GASTROPARESIS

- Gastroparesis literally translated means "stomach paralysis". Gastroparesis is a digestive disorder in which the motility of the stomach is either abnormal or absent
 - Symptoms of gastroparesis include bloating, nausea, early fullness while eating meals, heartburn, and epigastric pain. These symptoms are often referred to as dyspepsia.
 - Perhaps the most common symptom is early satiety, or the sensation of feeling full shortly after starting a meal.
 - Nausea and vomiting are also common.
 - Gastroparesis may regurgitate or vomit undigested food many hours after their last meal.
 - Weight loss can occur due to poor absorption of nutrients or taking in too few calories.

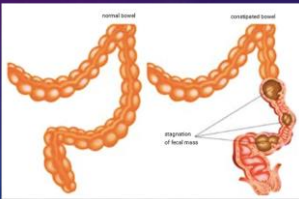
CONSTIPATION



SLOW TRANSIT CONSTIPATION

Slow-transit Constipation: Pathophysiology

- Decreased colonic motility and frequency of mass movements^{1,2}
- Blunted defecatory responses to waking, meals and laxatives^{3,4}
- Absent or decreased number of pacemaker cells (interstitial cells of Cajal) and enteric neurons⁴



¹ Dhillon V, et al. J Clin Gastroenterol. 2002;35:20-26
² Rao SS, et al. J Clin Gastroenterol. 2002;35:20-26
³ Rao SS, et al. J Clin Gastroenterol. 2002;35:20-26
⁴ Rao SS, et al. J Clin Gastroenterol. 2002;35:20-26

WEIGHT LOSS IN PARKINSON'S DISEASE

- **Decreased appetite in PD can have many causes:**
 - Decreased sense of smell
 - Apathy or the state of emotional indifference, is a common non-motor symptom in PD. With a decreased interest in activities in general, there may be a decreased interest in meal preparation and meals, leading to decreased food intake.
 - Depression is also a common non-motor symptom of PD which can manifest as decreased appetite and food intake.
 - Nausea can be a side effect of PD medications. It can also be caused by gastroparesis or slow emptying of the stomach, a common problem in PD. Either way, the presence of nausea can have a significant impact on appetite.

WEIGHT LOSS AND PD

- **Increased energy expenditure can be associated with PD:**
 - Dyskinesias are extra movements which can be side effect of carbidopa/levodopa.
 - Tremor as well as muscle rigidity, if persistent, can be causes of excessive energy consumption and subsequent weight loss.
 - Although the reasons are not completely understood, PD can be associated with dysregulated energy use even without extra movements. There are many theories as to why this may be the case, including abnormalities of the hypothalamus, an area of the brain that is responsible for many automatic functions including food intake and energy metabolism.

WEIGHT LOSS AND PD

- **Other symptoms that may contribute to weight loss in PD:**
 - People with difficulty swallowing associated with PD will typically slow down their eating and reduce their consumption in an attempt to eat without coughing or choking.
 - PD often causes slowed transit of food through the gut which can impact absorption and cause weight loss
 - Mobility issues and tremors may impede the ability to buy groceries, prepare meals, and eat, all contributing to reduced food intake.

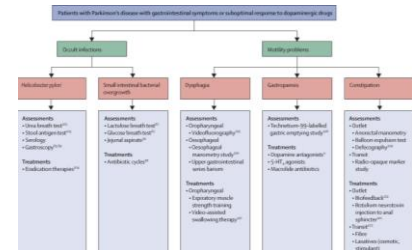
WEIGHT LOSS AND PD

Weight loss has been linked to a poorer quality of life and more rapid progression of PD

- Weight loss can be a hallmark of advancing disease
 - as it could be a consequence of more swallowing difficulties, increased rigidity, more tremor and dyskinesias
- Having weight loss can further lead to poorer health. Inadequate food intake can contribute to malnutrition and vitamin deficiencies.
- Malnutrition can subsequently be the cause of increased susceptibility to infection, increased fall risk and increased frailty. The situation often leads to muscle atrophy and finally causing a further decrease in activity and function.
- Osteoporosis, or porous and fragile bones, is more common in underweight people since bone structure is dependent on weight-bearing. Since osteoporotic bones are more prone to fracture during a fall.

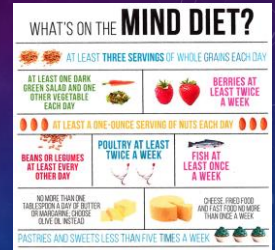
What can we do about weight loss

- Have your swallow evaluated
- Visit with a dietician
- PD medication adjustments – these may be necessary to control either dyskinesia or tremor that may be contributing to unnecessary energy expenditure.
- Treat depression – if depression is contributing to poor appetite, this can often be addressed with psychotherapy or anti-depressant medications.
- Figure out with family and friends how to improve food procurement and preparation.



NUTRITIONAL CONSIDERATIONS

Green leafy vegetables
 Other vegetables
 Nuts* (may recommend crushed or nut butters)
 Berries (especially blueberries and strawberries)
 Beans
 Whole grains
 Fish*
 Poultry
 Olive oil
 Red wine* — with caution — see below
 The five unhealthy groups are:
 Red meats
 Butter and stick margarine
 Cheese
 Pastries and sweets
 Fried or fast food



CONSTIPATION DIET CONSIDERATIONS

- 25 and 38 grams of dietary fiber per day are recommended for women and men, respectively.
- The average American adult consumes only 15 grams of fiber per day.
- Adequate fluid intake is essential with increased fiber intake.

THERAPEUTIC CONSIDERATIONS

- **Change in diet or activity**
 - **Lowered activity** – Exercise and increased activity will assist in establishing regular bowel patterns.
 - **Diet** – Be sure to include fiber-rich foods: bran, whole-grain breads – oat, rye, fruits, vegetables (leave peel on), whole-grain cereals, oatmeal, pasta, nuts, popcorn and brown rice.
- **Medications** – narcotics, sedatives, antacids, antispasmodics, iron supplements
- **Not drinking enough fluids** – Drink at least 6 to 8 ounce glasses of fluids per day. This is all inclusive (everything you drink like water, tea, coffee, juice, colas, etc.), but water is best, and we encourage you to drink primarily water. Bladder patients should reduce fluid intake after the evening meal.

PHARMACOLOGICAL CONSIDERATIONS

- **Medications**
- **Bulk producing:** Metamucil, Fibercom or Citrucel. Mix 1-2 Tablespoons in juice or water and take by mouth 1 to 2 times daily. This adds consistency or bulk to the stool and facilitates water retention in stool – must take adequate fluids by mouth to avoid causing constipation.
 - **Note:** some practitioners do not recommend these but other practitioners find it useful. See the quote below.
- **Stool Softeners:** Colace. Softens stool by facilitating the admixture of fat and water (detergent activity). Do not use with mineral oil. Take 1 tablet by mouth 1 to 2 times daily.
- **Combinations:** Pericolace. Mild stool softener and laxative combined. Take by mouth 1 to 2 times daily.
- **Irritant/Stimulant:** Products containing Senna. Laxative with direct action on the intestinal mucosa and the nervous plexus of the bowel.
- **Suppositories:** Glycerin, Dulcolax. Inserted rectally every other day or when needed. Stimulates the rectum and assists with evacuation.

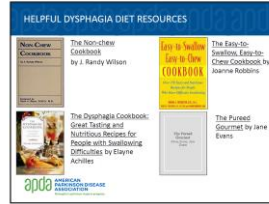
NUTRITIONAL CONSIDERATIONS

HEALTHY
EATING
GOALS

- **Adequacy (Calories)**
 - Avoiding unplanned weight loss
- **Balance (Macronutrients)**
 - Carbohydrate, protein, fat
- **Variety (Micronutrients)**
 - Vitamins and minerals
- **Nutrition Challenges**
 - Managing constipation,
 - loss of appetite,
 - medication interactions
- Minor adjustments often effective
- Add 100-400 calories daily for gradual weight gain
- Small, frequent meals are easier to tolerate
- Add softer foods that require less cutting and chewing
- Low protein-high calorie supplements may be helpful if
- larger additions are needed to manage weight loss

BONE HEALTH

- Enriched rice milk and almond milk are lower in protein and healthy
- alternatives to dairy for calcium and Vitamin D.
- The following are good sources of
- Vitamin D:
 - Skim, 1% or soy milk
 - Yogurt
 - Fatty fish such as salmon
 - Egg yolks
- Plant foods are rich in other nutrients important for bone health including magnesium and Vitamin K



QUESTIONS