

Esophageal Cancer with Enteral Nutrition

FSHN 467
Fall 2012
Kristina Krug

Summarize History

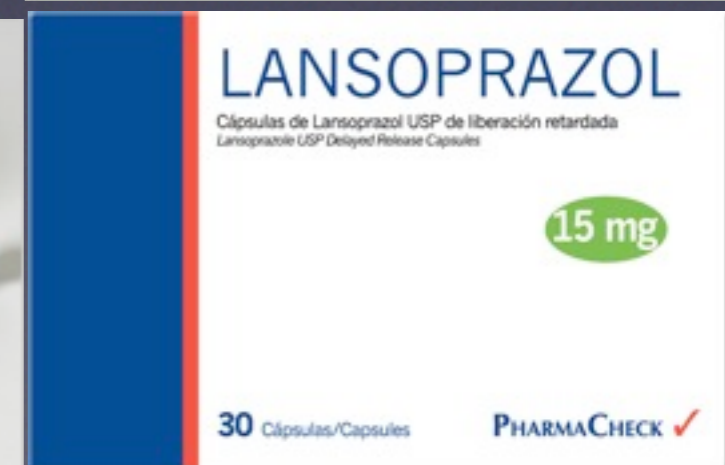
- RFA:
 - 56yo M admitted c coughing, sore throat, progressive difficulty swallowing.
- PMHx:
 - Gastroesophageal reflux disease
 - Barret's esophagus
- Dx:
 - Adenocarcinoma of distal esophagus and gastroesophageal junction.
- Tx:
 - Chemotherapy w/ 5-flourouracil, cisplatin and radiation.
 - Esophagectomy and j-tube placement are planned following chemotherapy.

Summarize History

- Social Hx:
 - Smoker (30 pack per year)
 - Drinks Alcohol (3-4 Martinis on the Weekend)
- Nutrition-Focused Physical Findings:
 - Weak and uncomfortable appearance
 - Odynophagia
 - Dysphagia

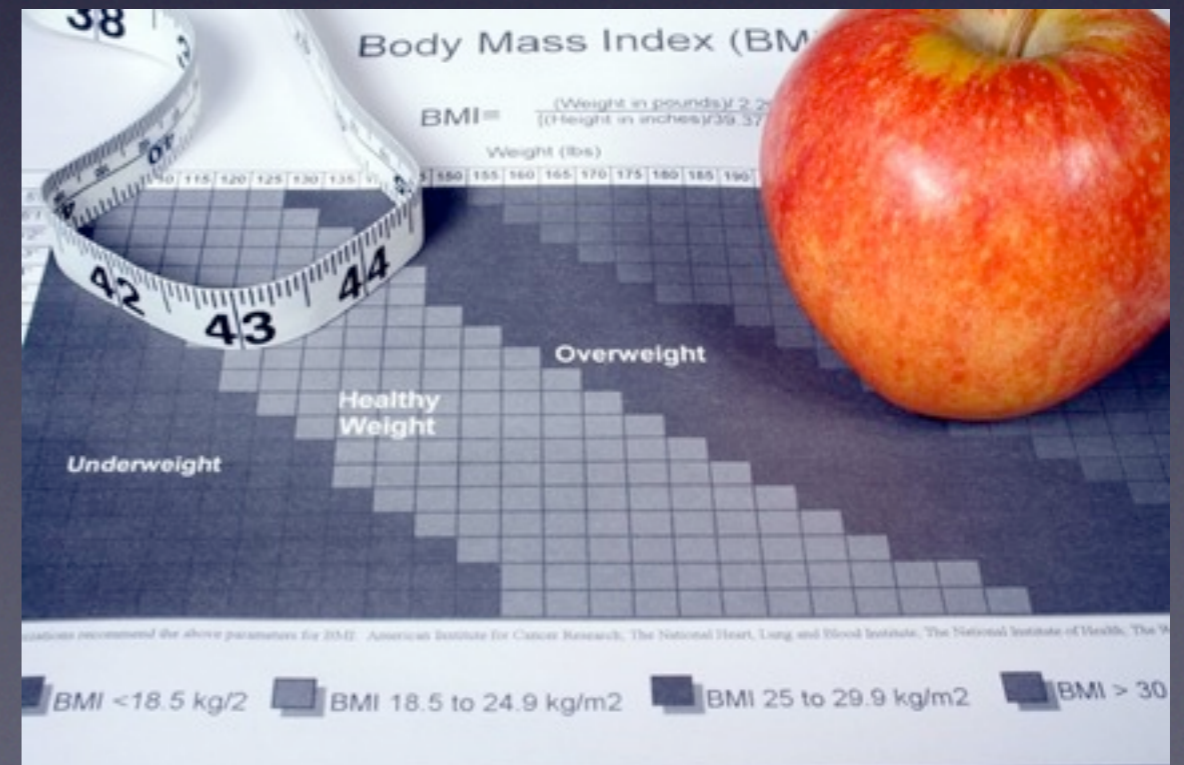
Summarize History

- Nutrition Related Hx:
 - 2 months of difficulty swallowing
 - **Initial:** Solid Foods
 - **Recently:** Liquids
 - IV fluids & Liquid Diet
- Mediations:
 - Ondanestron (nausea)
 - Hydromorphone (pain)
 - Lansoprazole (dysphagia)



Anthropometrics

- Height: 5'8" (173 cm)
- Current Weight: 75 kg
- Usual Weight: 84 kg
 - %Wt. Change: -11% in 4 months (Severe wt. loss)
- IBW (Hamwi): 70kg
 - %IBW: 107% (normal)
- BMI: 25 kg/M² (Overweight)



Biochemical

	Normal Range	Reported
Albumin	3.5-5.5 g/dL	2.9 mg/dL (LOW)
Prealbumin	16-40 mg/dL	8 mg/dL (LOW)
Hemoglobin	14-18 g/dL	13.8 mg/dL (LOW)
Hematocrit	38-54%	37% (LOW)



Diet Analysis- Based on 24 Hr Recall



Food Group	Consumed	My Plate
Grains:	1/2 oz	7oz
Fruits:	1/2 cup	2 cups
Vegetable:	0 cup	3 cups
Dairy:	0 cup	3 cups
Protein:	1/2 oz	6 oz

Breakfast

Scrambled eggs (1/2 egg)
Oatmeal (1/4 cup)

Total Intake: ~235 kcal
(8% of needs)

Lunch

Soup (1/4 cup)
Apple Juice (1/4 cup)

Dinner

Soup (1/4 cup)
Canned Peaches (1/4 cup)

Energy Requirement

Harris-Benedict Equation:

$$66.47 + 13.75 (75\text{kg}) + 5 (173\text{cm}) - 6.77 (56\text{yo}) = 1583.6$$

$$1584 \text{ kcal/d} \times \text{SF} (1.5) \times \text{AF} (1.2) = 2851.2 = \sim 2850 \text{ kcal/day}$$

Protein Requirements (g of protein per kg):

$$1.5 \text{ g of protein/kg} \times 75 \text{ kg} = 115 \text{ g of protein/d}$$

Fluid Requirements (1 mL per kcal energy expenditure):

$$1500 \text{ mL} + (20 \text{ mL/kg} \times 55 \text{ kg}) = 2600 \text{ mL}$$

Nutrition Diagnosis

Primary Diagnosis:

NI-2.1

Inadequate oral intake r/t odynophagia and dysphagia and reduced appetite AEB current intake of 8% of energy needs and severe unintentional weight loss of 11% of body weight over the past 4 months.

Secondary Diagnosis:

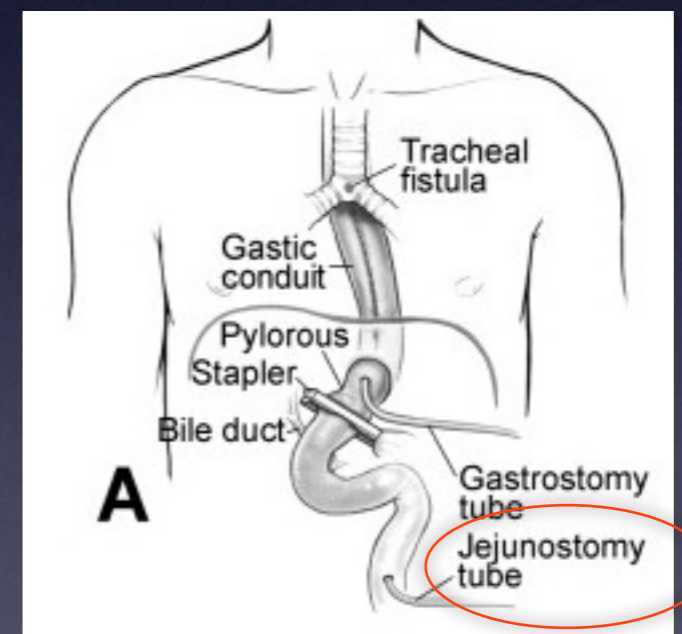
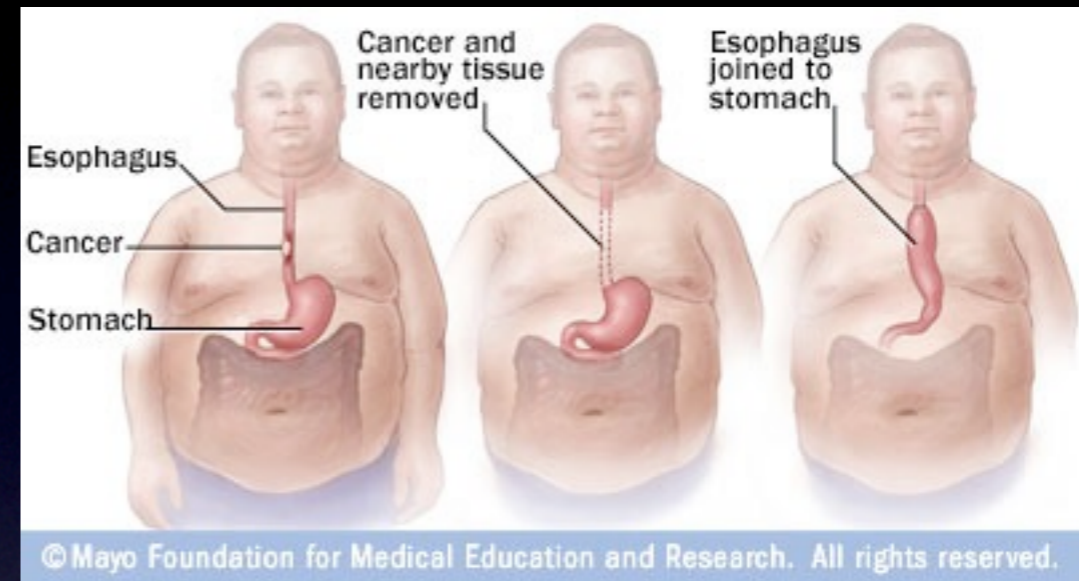
NI-5.2

Malnutrition r/t nausea, early satiety and increased nutrient needs due to chemotherapy AEB low Albumin of 2.9mg/dL, low prealbumin of 8mg/dL, and severe unintentional weight loss.

Plan Management

Nutrition Intervention:

1. IV & Liquid Full Diet (pre-op)
2. NPO 5-7 days before surgery
3. Enteral Nutrition
 - Jejunostomy (long term enteral access)
 - Continuous Drip
 - high PRO formula at low rate through pump (post-op)
 - advance feedings gradually over several Days



Plan Management (Pre-Op)

Full Liquid Diet Order

Breakfast:

juice (1 c) clear broth (3/4 c) popsicle (equiv 2 oz liquid) herbal tea w/honey (1 cup)

AM Snack:

Clear sports drink (1 c)

Lunch:

juice (1/2 c) clear Broth (3/4 c) lemon lime soda (1 c) lemon gelatin (1/2 c)

PM Snack 1:

popsicle (equiv. of 2oz liquid)

Dinner:

juice (1/2 c) clear broth (3/4 c) ginger ale (3/4 c) orange gelatin (1/2 c) herbal tea w/honey (1 c)

PM Snack 2:

orange gelatin (1 c)

2600 mL

Enteral Formula Calculation

Estimated Energy, Protein, Fluid Needs:

Energy: Harris-Benedict

$$66.47 + 13.75 (75\text{kg}) + 5 (173\text{cm}) - 6.77 (56\text{yo}) = 1583.6$$

$$1584 \text{ kcal/d} \times \text{SF} (1.5) \times \text{AF} (1.2) = 2851.2 = \sim 2850 \text{ kcal/day}$$

Protein:

$$1.5\text{g} \times 75\text{kg} = 105\text{g}$$

Fluid:

$$1500\text{mL} + (20\text{mL/kg} \times 55\text{kg}) = 2600\text{mL}$$

Formulary: High Protein, PERATIVE 1.3

$$- 2850 \text{ kcal/day} / 24 \text{ hrs} / 1.0 \text{ kcal/mL} = 91.34 \text{ mL/hour} = \mathbf{90 \text{ mL/hr}}$$

$$- 90 \text{ mL/hr} \times 24 \text{ hr} \times 0.0624 \text{ g PRO/mL} = 134.78 \text{ g/day} = \mathbf{135 \text{ g/day}}$$

Water Flush:

$$- 2600\text{mL} - (.79 \times 2160\text{mL}) = 893.6 \text{ mL/6} = 148.9\text{mL} = \mathbf{150 \text{ mL}}$$

of cans:

$$- 2160 \text{ mL} / 237 \text{ mL can} = 9.1 \text{ cans} = \mathbf{9 \text{ cans}}$$

Enteral Nutrition Formula Order (Post-op)

Feeding Tube Type: J-Tube

Tube Feeding Regiment: Continuous

Total 9 cans of Perative per day. (2133mL/day)

90 mL/hr of Perative.

Flushes:

Flush with 150 mL of water q 4 hrs.

Notes:

Start: 20 mL/hr and advance q 8 hrs until 90mL/hr is reached.



Does it add up?

NEEDS:

Formula: PARATIVE 1.3

Energy: 2850 kcal/day

2808 kcal/day

Protein: 105g/day

135g/day

Fluids: 2600mL/day

1700 mL (water content)

900 mL (flushes)



Plan Management

Nutrition Intervention:

2. Advance to clear then full liquid diet.

Communication

1. Postesophagectomy diet education.

- home EN regiment
- oral diet advancement
- small, frequent meals
- soft, moist foods easy to swallow
- avoid carbonated beverages
- pt. keep upper body elevated during and after eating

Plan Management

Monitor & Evaluate:

1. Tolerance of Enteral Nutrition (Post-op)

- Monitor:
 - access problems (tube displacement/obstruction)
 - administration problems (microbial contamination)
 - GI complications (delayed gastric emptying, diarrhea, distention)
 - Metabolic complications (refeeding syndrome)

2. Tolerance of oral diet progression

- ask caregivers to ween pt. off of EN
- decrease by one can per night for several days

2. Weight

- monitor weight stabilization

3. Appetite

- monitor as other foods are reintroduced at surgeon's discretion

References

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Thank You
(Questions?)