UNDERSTANDING NAFLD/NASH AND THE NUTRITIONAL IMPLICATIONS

CASE STUDIES

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CASE STUDY #1: SANDY

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HPI: 43yo female with new dx NAFLD referred to the dietitian for nutrition education.

She would like to know if she should go on an all-liquid diet and how much Vitamin E she should be taking daily.

PMH:

Overweight/Obesity

Carpal Tunnel release 2012

Pre-diabetes

Social: Married with two teenage kids. She works as a medical scheduler 45hrs/wk.

CASE STUDY #1: SANDY

Anthropometrics
Ht: 5'7" (170.2cm)
Today's Wt: 235lbs (106.8kg) for BMI 37; Obesity class II
IBW: 135lbs (61.4kg) +/- 10%
NFPE: Neg for muscle or fat wasting
Grip Strength Testing: >1SD but <2SD below the mean.

Labs
BMP, Mg and Phos wnl
Trig 233
TC 185
LDL 105
HDL 20
HgA1c 6.9%

CASE STUDY #1: SANDY

Diet History

- Has tried "every diet out there and nothing works".
  - Atkins
  - South Beach
  - Blood Type
  - Grapefruit
- Not currently following an organized diet plan.

Weight History

- In the last 5 years, most success was a 15lb wt loss (-6% change) which she maintained for 9mo.
- Has struggled with weight management since birth of her 2 kids.
  - Has progressively gained weight over the last 15yrs.

Physical Activity

- Able to complete ADLs. No time dedicated to exercise.

CASE STUDY #1: SANDY

24hr Recall

B: Venti Mocha and blueberry muffin.

AM: Granola bar.

L: ½ pasta entrée with salad and breadsticks and a acai and blueberry lemonade.

PM: yogurt parfait with fruit and granola.

D: 2 slices of large delivery pizza with meat. Coke.

HS: Bottled sangria x2 usually Thurs, Fri and Saturday nights.

CASE STUDY #1: SANDY

Malnutrition Assessment

Does not meet criteria at this time.

Nutrition Diagnosis?

- Overweight/Obesity related to excessive kCal intake and limited physical activity as evidenced by BMI, 24hr recall and patient reported diet/wt hx.

So where do we start?

CASE STUDY #1: SANDY

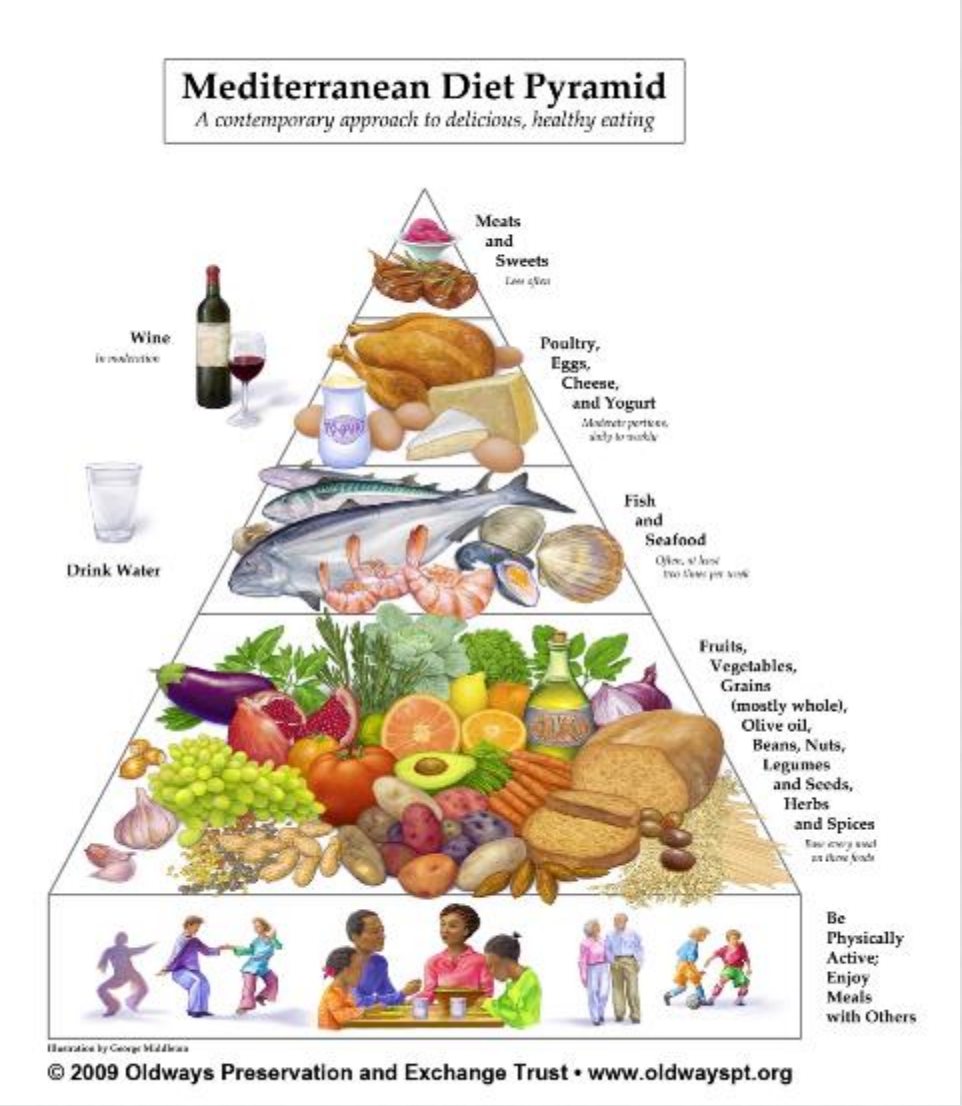
Nutrition Intervention

- **Nutrition Education** on weight loss goals to improve steatosis and/or fibrosis. Goal: 5-10% *sustained* body weight loss.

- **Nutrition Education:** Mediterranean style diet

MEDITERRANEAN STYLE DIET

- Plant based with emphasis on fruits and vegetables, whole grains, legumes and nuts.
- Replace butter with olive and canola oils.
- Herbs and spices to replace salt.
- Limit red meat to ~3x/mo.
- Fish and poultry at least 2xwk.
- Red wine in moderation.
- Enjoy meals with family or friends and get plenty of exercise!



https://www.mayoclinic.org/healthy-lifestyle/nutrition-and-healthy-eating/in-depth/mediterranean-diet

CASE STUDY #1: SANDY

Nutrition Intervention

- **Nutrition Education** on weight loss goals to improve steatosis and/or fibrosis. Goal: 5-10% *sustained* body weight loss.
- **Nutrition Education:** Mediterranean style diet
  - Nutrition Education: Plate Method for portion control
- **Nutrition Counseling:** Answer questions re: Liquid meal replacement and Vitamin E supplementation
- **Nutrition Counseling:** Goal Setting
  - Plan at least 1 meal/day.
  - Work toward eliminating liquid kCals (and reducing fructose intake)
  - Consider packing a lunch and using the other half of lunch hour for a walk.
  - Substitute high cal coffee beverage for black coffee.

FOOD FOR THOUGHT

CASE STUDY #2: MR. H

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HPI: 52yo male with NASH Cirrhosis c/b ascites, LE edema, esophageal vx. s/p banding and HE. He is meeting with the dietitian today as part of his evaluation for Liver Transplantation.

PMH:

- Extreme Obesity s/p RNYGB 2012
- T2DM – on insulin c meals and oral hypoglycemics in the past; no medication required since his RNYGB

Social: Divorced. Lives alone. Has 3 adult children; 1 lives in the area and is in attendance for LTx Eval. He is on disability d/t HE. He is a former electrical engineer.

CASE STUDY #2: MR. H

Anthropometrics

Ht: 6'4" (193cm)

Today's Weight: 310lbs (140.9kg)

IBW: 202lbs +/- 10%

Nutrition Focused Physical Exam

- Severe temporal wasting with notable protrusion of brow bone. Severe muscle wasting in clavicles.
- Moderate fat wasting in upper arms.
- Unable to assess calves d/t fluid retention.
- Abdomen is notable for pannus.

Grip Strength Testing

>2SD below the mean for age and gender.

CASE STUDY #2: MR. H

Fluid Status

- 2+ edema BLE up to knees
- Pt reports ascites in abdomen and flanks.
  - His last LVP was 2wks ago removing 8L.
  - He is getting LVP q2wks for the last 3 mo.
    - Volumes range from 5-10L with 6L avg for the last 3 taps.

Labs

Na+131, K+ 3.6, Cl 98, CO2 26, BUN 8, Cr 0.4, Glu 90

HgA1c 5.4%

Vitamin D <10

Medications & Nutrition Supplements

Furosemide, spironolactone, lactulose, rifaximin, chewable MVI BID, Ca c Vit D when he remembers

CASE STUDY #2: MR. H

Diet History & GI complaints

- Tries to follow gastric bypass diet but is getting tired of eggs.
- Food tastes bad.
- Never feels hungry.
- Nausea limits his meal time frequency and he is really eating only 2-3x/day.
  - Son interjects and reports some days his Dad does not eat at all.
- Feels full after bites.
- Drinking Pepsi even though he knows he's not supposed to.
- Diarrhea with lactulose.

CASE STUDY #2: MR. H

24hr Recall

B: None.

L: hard boiled egg and 6oz V-8 juice

D: microwaveable frozen entrée. Eats ½. Pepsi.

HS: Popcorn and Pepsi.

Physical Activity

- Until 1yr ago: enjoyed hiking with dog.
- Today:
  - Arrives in a wheelchair and reports using a cane around his house.
  - Can bathe and dress himself, but struggles with the laundry and stairs in his home.
  - He avoids cooking because it wears him out.

CASE STUDY#2: MR. H

Weight History

- Lifetime max, 3mo prior to RNYGB: 369lbs (BMI 45)
  - Lost 10lbs prior to surgery.
- 1yr post-op weight: 250lbs (BMI 30.5)
  - Lost 71% excess body weight
- Over several years, regained to 295lbs (BMI 36) and stable until 1yr ago.
  - Over the last 6 months, wt. ranges from 280-330lbs with fluid changes however son comments, pt was down to 265lbs after leaving the hospital 3months ago.
- EDW?
  - 265lbs (120.5kg); BMI 32.3 – obesity class I

CASE STUDY #2: MR. H

Nutrition Diagnosis

Unintentional weight loss related to inadequate oral intake and increased nutrient needs as evidenced by cirrhosis, diet/wt hx including 24hr recall, unint. Wt. loss over the last year, muscle and fat wasting.

Malnutrition

This patient meets criteria for chronic severe protein calorie malnutrition based on the following parameters:

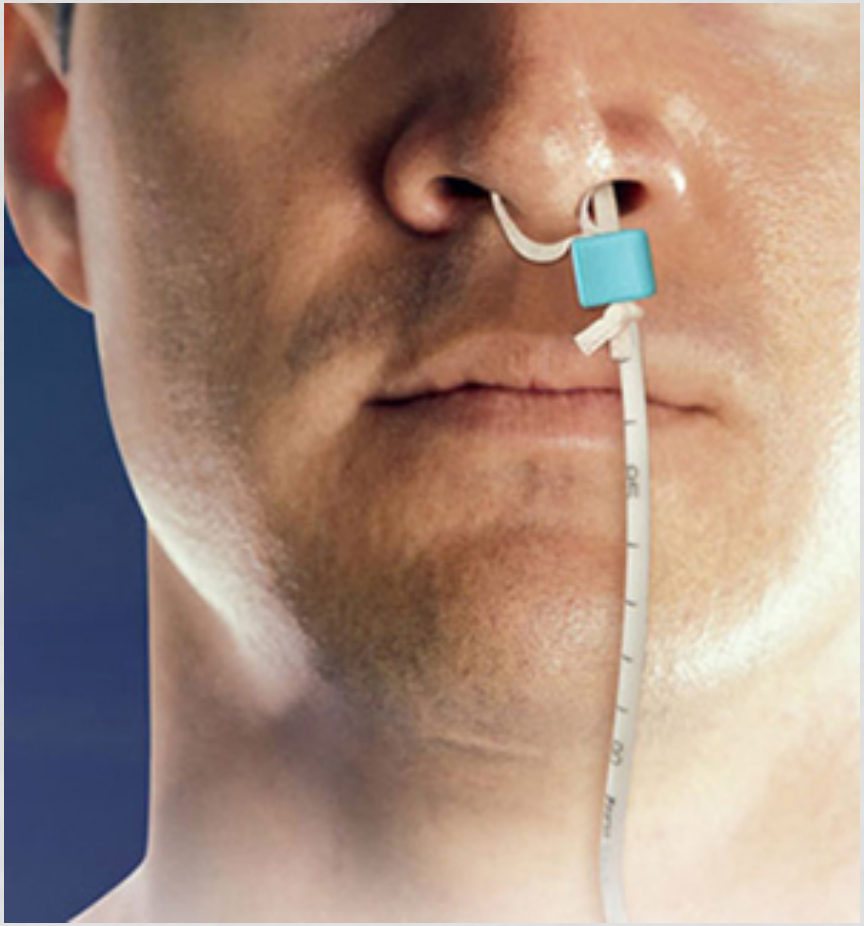
- PO intake <50% estimated nutrient needs for the last 6 months, minimally.
- 10% unintentional weight loss over the last 9 months.
- Severe muscle wasting in temple and clavicle areas.
- Moderate fat wasting in upper arm area.
- Grip strength <2SD below the mean.

CASE STUDY #2: MR. H

Nutrition Interventions?

- **Educate** on basics of nutrition and cirrhosis.
- **Counseling** on NFPE findings and current nutrition status as it relates to surgical outcomes.
- **Counsel** on weight goals:
  - Stabilize weight! No more weight loss "intentional" or otherwise.
  - Stabilizing weight will likely take weeks to months of good nutrition daily.
- **Educate** on small, frequent meals:
  - Focus on protein density.
  - Provide examples using pt's likes and dislikes.
    - Set parameters: You can only have 4oz Pepsi if it's flat, and you have eaten 15g PRO at this meal/snack.
  - Help pt come up with their own examples/meal plan.
  - Consider liquid nutrition supplements.
- **Food/Nutrient Delivery:** Review micronutrient supplementation
  - Standard post RNYGB vitamin/min regimen?
    - What about B12? Folate?
      - Could this be contributing to his unsteady gait?
      - What about copper?
    - Why isn't he taking Vitamin D? Level critically low and will need Rx repletion course.
    - How about zinc with c/o dysguesia and diarrhea.
    - Work with MD on iron studies and any appropriate prescriptions.
- **Counsel** on appropriate sodium intake and fluid retention?
  - Given poor po, his malnutrition is likely contributing to his fluid retention more than his sodium intake.
- **Coordination of Care** – Nutrition f/up 1-3 months.

FOOD FOR THOUGHT



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THANK YOU!