

Mini Case Study #1
Due 1/16/2015
20 points

1. **Please be concise and use only the space provided.**
2. **Please cite sources as necessary.**
3. **You may use your textbook, the pocket resource, and drugs.com**

Patient History: Miss R is a 12 year old Hispanic female referred to you by her PCP for “fatty liver”. Miss R. is accompanied by her mother who does most of the talking as the patient is **embarrassed and withdrawn**. Patient is an only child who enjoys watching movies and reading books. Patient has recently complained of being tired, falling asleep at school, and mild abdominal pain. She was born LGA at 10 lbs 2 oz. Mother states she has always been a ‘big girl’.

PMH: LGA, Childhood Obesity

Meds: none

Family hx: mother and father have **Type 2 Diabetes**

Physical History:

General Exam: obese female

Vitals: Temp 98.6 F, BP 138/89 mm Hg, HR 84 BPM, RR 23

Ht: 57” (25th %tile) Wt: 152lb (>95th %tile) BMI 32.9 (>95th %tile)

Nutrition History:

General: Reports adequate appetite. Miss R. will eat some vegetables and fruit but **prefers starchy and high fat foods**. She **sneaks candy** from her cousins after school. Mom cooks traditional Hispanic meals at home, but a **couple times per week** they will go to fast food and get a burger or pizza.

Usual Dietary Intake:

- *Breakfast:* 2 breakfast burritos with cheese, eggs, sausage, beans, and homemade tortillas (made with lard), and a large glass of juice
- *Snack:* granola bar
- *Lunch:* school lunch (pizza or burger, with fries, maybe a fruit, chocolate milk or juice, with a cookie
- *Snack:* she is offered fruit but prefers candy and dried cereal (Fruit Loops) with regular soda
- *Dinner:* 3-4 tortillas (made with lard), cheese, beef or chicken, maybe a vegetable (corn or peas), and a glass of whole milk
- *Snack:* microwavable popcorn with butter or ice cream

Food allergy/intolerance: NKFA

Treatment Plan

Weight Management:

- Reduce simple sugar intake
- Reduce portions at meals
- Aim for half plate fruits and vegetables at meals
- Choose low fat foods
- Increase physical activity, 30 minutes daily

Weight loss of 5-10% over 3-6 month period

Reassess labs in 3 months

Fasting Labs 12/20/2013

Lab	Value	Interpretation
ALT	80 U/L	↑
GGT	28 U/L	WNL
Glucose	115 mg/dL	↑
Hemoglobin A1c	6.8%	WNL
Total Cholesterol	245 mg/dL	↑
LDL Cholesterol	148 mg/dL	↑
HDL Cholesterol	22 mg/dL	↓
Triglycerides	198 mg/dL	↑

CT scan (12/20/2013) shows the presence of a hepatic steatosis

1. In the table of laboratory values above, for the column labeled "Interpretation", indicate whether the values are high (↑), low (↓) or within normal limits (WNL). (4 points)

Ref: NUT 116BL Liver Disease I lecture, slides #11-13

Pocket handbook pg. 36, 39, 41, 52

2. Briefly explain how Insulin Resistance can lead to Non-Alcoholic Fatty Liver Disease (NAFLD). (6 points)

As insulin resistance develops, hormone sensitive lipase takes a stronger effect in the body. There is an increase in TG levels and FFA release, which are both taken up in the liver. The FFAs that are collected are uptaken through chylomicron remnants. With the excess insulin circulating in the blood system, the increase of TG and FFA synthesis leads to more storage of fatty acids in the liver and inhibited TG export from the synthesis of apolipoprotein B, resulting in an accumulation of TG and FFA in the liver.

Ref: NUT 116BL Liver Disease I lecture, slide #24

3. Which foods in Miss R's diet are contributing most to: (2 points)

a. Triglyceride level:

Tortillas made with lard

Cheese

Whole milk, ice cream

Sausage

Fries

b. Fasting blood glucose level:

Tortillas

Pizza

Cookies

Candy

Soda

4. Explain the rationale for the following interventions: (4 points)

a. Reduce simple sugar intake

Simple sugars are a high risk nutrient for individuals with NAFLD. Simple sugars are a less than optimal type of carbohydrate because they have a high glycemic index, and are typically found in processed foods that have little nutrient density. Reducing simple sugar intake will help reduce fasting blood glucose levels and also decrease the intake of foods that provide very little micronutrient density.

b. Reduce portions

Reducing portion size would allow for the individual to eat less in general. A smaller caloric intake would allow for the individual to lose weight. Blood glucose and consumption of fats would also be more tightly regulated.

c. Choose low fat foods

Choosing foods that are low in fat would allow for the individual to consume foods that are wholistically better for them. Fats have more calories than the other macronutrients (9 cal/g vs. 4 cal/g). Foods that are high in fats are typically processed and have little micronutrient density. This also helps with decreasing circulating blood glucose.

d. Increase physical activity

Increasing physical activity would help for weight maintenance and promoting furthering weight loss.

5. Write 2 PES statements using the Intake domain. (4 points)

1. Excessive fat intake (NI-5.6.2) r/t poor food choices, increased blood TG levels aeb 24 hour food recall, lab results.

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2. Inadequate fiber intake (NI-5.8.5) r/t poor food choices (lack of fruits and vegetables) aeb 24 hour food recall.