

Case Study 6

Nutrition Therapy for Hypertension and Cardiovascular Disease

- What risk factors does Mrs. Anderson currently have?

- | | | |
|-----------------|---------------------------------------|----------------|
| i. Genetics | iv. Excessive alcohol intake | vii. Ethnicity |
| ii. Age | v. Smoker | |
| iii. Overweight | vi. Low HDL, High LDL, High Na intake | |

- What are the most recent recommendations for nutrition therapy in hypertension?

- | | |
|--|---------------------------------------|
| i. The DASH diet | vi. Increase K, Mg, Ca |
| ii. Weight loss | vii. Physical activity 30mins per day |
| iii. BMI <25 | viii. No smoking |
| iv. Limit Na to 1500-2300mg per day | |
| v. Limit alcohol intake to 1 drink per day | |

- What are the Therapeutic Lifestyle Changes?

- | | |
|---|--|
| i. Decrease fat intake to 25-30% of kcals | iii. Exercise for 30min per day |
| ii. Increase fiber intake to 20-30g per day | iv. Limit Na intake to 1500-2300mg per day |

- Calculate Mrs. Anderson's body mass index (BMI).

$$\text{BMI} = 160 / 4356 * 704.5 = 25.8 \sim 26$$

- What are the health implications of this number?

There are many health implications of this number. Hypertension, high blood pressure, insulin resistance, Kidney failure, ventricular arrhythmia, vision failure, etc.

- Calculate Mrs. Anderson's resting and total energy needs.

$$\text{REE} = 665.1 + 9.6 (59\text{kg}) + 1.9 (167\text{cm}) - 4.7 (54) = \mathbf{1300\text{kcal}}$$

$$\text{TEE} = 1300 * 1.3 = 1671 \sim \mathbf{1700\text{kcal}}$$

Activity factor= **1.3** because she walks most days

- How many calories per day would you recommend for Mrs. Anderson?

Although it is stated to decrease 500kcal per day, in order to lose weight, this will leave Mrs. Anderson at 1300kcal. I do not think she should cut out that many kcal to start out on this weight loss program. I would recommend to start with 1500kcal to lose weight and get used to the transition and when she gets closer to her goal weight, then she can decrease her kcal to 1300 kcal to continue to lose weight.

- Use a computer dietary analysis program or good composition table to enter Mrs. Anderson's usual dietary intake.

| item | kcal | Na (mg) | Total fat (g) | Sat. fat (g) |
|-------------------------------------|-------------|-------------|---------------|--------------|
| black coffee 1c | 109 | 20 | 2 | 1.2 |
| Instant oatmeal 1 c | 147 | 2 | 2.3 | 0.4 |
| margarine 1 tsp | 30 | 28 | 3.4 | 0.6 |
| sugar 2 tsp | 23 | 2 | 0 | 0 |
| coffee 2c | 218 | 40 | 4 | 2.4 |
| glazed donut 1 | 190 | 90 | 11 | 5 |
| Campbell's tomato bisque soup 1 can | 520 | 3520 | 14 | 6 |
| Saltines 10 | 125 | 400 | 2.5 | 0 |
| diet cola 1can | 1 | 41 | 0 | 0 |
| baked white chicken 60z, no skin | 240 | 130 | 3 | 1 |
| Salt 1 tsp | 0 | 380 | 0 | 0 |
| pepper 1 tsp | 5 | 1 | 0 | 0 |
| garlic 1 tsp | 4 | 0 | 0 | 0 |
| baked potato 1 lrg w/ salt | 278 | 730 | 0.3 | 0.1 |
| 1 tsp butter | 25 | 20 | 2.9 | 1.8 |
| pepper 1 tsp | 5 | 1 | 0 | 0 |
| glazed carrots 1c | 225 | 220 | 11.1 | 4.4 |
| Dinner salad | 131 | 382 | 14.5 | 9.9 |
| Ranch 3 tbsp | 218 | 367 | 23.1 | 0 |
| Regular beers 2 | 305 | 28 | 0 | 0 |
| butter pecan ice cream 2c | 600 | 280 | 36 | 16 |
| SUMMATION | 3399 | 6682 | 130.1 | 48.8 |

- What nutrients in Mrs. Anderson's diet are of major concern to you?

Mrs. Anderson's Na intake, Saturated Fat intake, total fat and Kcal intake are of major concern.

- From the information gathered within the intake domain, list possible nutrition problems using the diagnostic term.

Excessive Sodium intake, excessive fat intake and excessive energy intake.

- Interpret Mrs. Anderson's risk of CAD based on her lipid profile.

She is at a high risk for CAD due to:

- i. High LDL ii. High Cholesterol iii. Low HDL

- Select two high-priority nutrition problems and complete PES statements for each.

PES 1: Excessive Na intake related to poor food choice as evidenced by intake being more than 100% recommended value.

PES 2: Excessive fat intake related to poor food choices as evidenced by more than 100% recommended value and BMI greater than 26.

- When you ask Mrs. Anderson how much weight she would like to lose, she tells you she would like to weigh 125, which is what she weighed most of her adult life. Is this reasonable? What would you suggest as a goal for weight loss for Mrs. Anderson?

Mrs. Anderson's goal weight of 125lbs is unrealistic. With her IBW being 130lbs, 130-135lbs is a more reasonable goal for now. She should aim to lose 10% for health outcome. She should only lose about 15 pounds.

- How quickly should Mrs. Anderson lose this weight?

It is recommended that she lose the weight 1-2 lbs per week. It should take her about 35-40 weeks to do this and it is recommended that she target lifestyle changes instead of just quick weight loss.

- For each of the PES statements that you have written, establish an ideal goal (based on the signs and symptoms) and an appropriate intervention (based on the etiology).

Goal 1: Limit Na intake to 1-3g a day. The Diet order is for 4g and that is good because if it were too low she would not follow it due to lack of taste.

Intervention 1: Follow the DASH diet

Goal 2: Limit energy intake to 1500kcal a day. Any lower and she may not follow it due to extreme reductions.

Intervention 2: Increase nutrient dense foods and decrease foods high in fat.

- Identify the major sources of saturated fat and cholesterol in Mrs. Anderson's diet. What suggestions would you make for substitutions and/or other changes that would help Mrs. Anderson reach her medical nutrition therapy goals.

The major sources of Saturated Fat and Cholesterol in Mrs. Anderson's diet are:

- i. butter pecan ice cream
- ii. Glazed donut

I would recommend trying fruit, low fat yogurt or sorbet for a snack or dessert. Try Italian or olive oil and balsamic vinaigrette dressing instead of ranch dressing. Explore more restaurants when you go out to dine. If she were to try any one of the three recommendations she will lower saturated fat and cholesterol levels.