Fluid Restricted Diet

A fluid restricted diet is one in which a patient is advised to consume a reduced amount of liquids along with foods that are high in water content.

Purpose

Nutrition Indicators

Indicators for a fluid restricted diet consist of increased or decreased levels of electrolytes in the body due to a malfunction of bodily systems. It may also be suggested in other diseases that cause fluid retention or where excess fluids can complicate the disease state.

- Hypervolemia
- Hyponatremia
- Hyperkalemia
- Hypocalcemia
- Hyperphosphatemia
- Hypermagnesemia
- Pulmonary edema
- Edema
- High Blood Pressure

Criteria to Assign Liquid Diet

The following are certain conditions/symptoms in which excess fluids on the body may damage tissue or the body is unable to excrete excess fluids.

- Edema, pitting edema
- Pulmonary edema
- Hypertension
- Acute and chronic renal failure
- Congestive Heart Failure

Rationale for Diet

A fluid restricted diet is commonly prescribed to those with various diseases that involve water retention or the body is unable to excrete excess levels of fluids and electrolytes. Excess fluids on the body can cause edema, which may restrict blood flow and damage surrounding tissues. It may also build up in the lungs, which reduces the efficiency of the lungs to oxygenate blood. Lastly, excess fluids increase blood volume which puts stress on both the heart to circulate effectively along with the blood vessels by stretching them out and causing loss of elasticity. Both scenarios can cause damage and complications.

Population

Overview

- Kidney failure occurs in nearly 651,000 Americans a year.
- 59 million Americans have prehypertension and 65 million have hypertension. In 2003, over 52,600 U.S. citizens died of hypertension or its secondary causes.
- In 2003, five million Americans were diagnosed with heart failure.

Disease Process

High blood pressure is caused by a disproportionate blood volume compared to the size of the blood vessels. In order to bring blood pressure down to decrease the risk of further complication

and damage in the body, a restricted fluid intake is suggested. This reduces the amount of fluid that is being absorbed in the body and therefore the blood.

Kidney malfunction causes an increase in blood pressure and fluid retention due to the kidneys inability to filter out extra fluid, electrolytes, and toxins. This can result in high blood pressure, edema, and pulmonary edema. To reduce the risk of developing these conditions, a restricted fluid diet is suggested in order to decrease overall body fluid content. It is also suggested in dialysis patients for the same reasons.

When the heart begins to malfunction, the output volume is decreased. Blood returning to the heart remains constant yet begins to build up due to reduced tidal volume. This buildup occurs in the lungs and can cause a series of complications that is dangerous to patients. Reducing fluid intake both decreases fluid buildup in the lungs and also reduces blood volume which relieves some stress off the heart.

Biochemical and Nutrient Needs

Nutrient needs are based on the patient's condition along with the need for fluid restriction. All nutrients are to be consumed within normal limits (following RDA) with the exception of sodium and fluid. Sodium should be restricted to consumption no higher than 2,400 mg/day and fluid no greater than 1,000mL/day plus urinary output.

General Guidelines

Nutrition Rx

Calorie Needs:

Mifflin-St. Jeor - Male: BMR = 10×weight + 6.25×height - 5×age + 5
Female: BMR = 10×weight + 6.25×height - 5×age – 161

Harris Benedict – Male: BMR = 66 + (13.7 x weight in kg) + (5 x height in cm) - (6.76 x age)
Female: BMR = 655 + (9.6 x weight in kg) + (1.8 x height in cm) - (4.7 x age)

Protein: 15% total calories
Total Fat: 25-35% total calories
Saturated Fat: < 7% total calories
Polyunsaturated Fat: < 10% total calories
Monounsaturated Fat: < 20% total calories
Cholesterol: < 200mg/day
Carbohydrate: 50-60% total calories
Fiber: 20-30g/day
*Sodium: < 2,400 mg/day
Potassium: > 4,700 mg/day
Magnesium: > 500 mg/day
Calcium: > 1,200 mg/day
(Note: all nutrients which have a higher suggested intake than the number presented still should be consumed under toxic levels and within moderate limits)

Adequacy of Nutrition Rx

This diet meets the RDA for all nutrients.

Goals

- Reduce blood volume
- Decrease blood pressure
- Relieve edema
- Decrease pulmonary edema
- Reduction in overall fluid content of body

Does it Meet DRI
Yes

Education Material

Nutrition Therapy

- Increase physical activity
- Smoking cessation
- Increased calcium, potassium, and magnesium intake
- Decrease sodium and fat intake
- Moderate alcohol consumption
- Weight Loss if overweight or obese
- Avoid processed foods
- Diet with a high level of variety

Ideas for Compliance

- Sample menu
- Provide patient with a list of foods to avoid and those which are recommended
- Dietary recall
- Diet Diary
- Exercise program
- Create menu plan for patient
- Dietary exchange diet

Sample Menu

Foods Recommended

- Bread
- Seeds
- Beans
- Dried Meats
- Dried Fruits
- Pasta (without sauce)
- Crackers
- Peanut Butte

Foods to Avoid

- Citrus Fruits
- Vegetables
- Deli meats
- Bacon and sausage
- Melons
- Dairy
- Soup
- Canned vegetables
- Gelatins
- Purees
- Pickles
- Pasta Dishes
- Juices
- Sauces

Meal Plan Example

Breakfast	Lunch	Dinner
½ cup dried oranges ½ cup oatmeal 1 egg 1 piece toast 1 tsp. jelly 8 oz milk	2 slices bread 1 tbs jelly 1 tbs peanut butter 8 oz. milk 15-20 potato chips	3 oz. baked chicken 4 oz. steamed potatoes 4 oz. broccoli 1 dinner roll

Websites

Organizations with Websites

i. Brigham and Women's Hospital - http://www.brighamandwomens.org/cvcenter/advancedheart/documents/Fluid_Restriction.pdf

ii. University of Virginia Health System - http://www.healthsystem.virginia.edu/UVAHealth/peds_urology/sodium.cfm

iii. University of California Office of Research Administration - http://www.research.uci.edu/ora/acup/foodrestriction.htm

iv. American Association of Kidney Patients - http://www.aakp.org/aakp-library/Fluid-Control/

v. Midwest Heart Specialists - http://www.midwestheart.com/resourceseducation/patient-education/heart-failure/fluid-restriction

Government Websites

- National Institute of Health - http://kidney.niddk.nih.gov/kudiseases/pubs/eatright/
- National Institute of Health - http://kidney.niddk.nih.gov/kudiseases/pubs/NutritionLateCKD/
- National Institute of Health - http://kidney.niddk.nih.gov/kudiseases/pubs/kdd/
- DASH diet - http://clinicaltrials.gov/ct2/show/NCT00939640

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iii. Moranville, M. P., & Jennings, H. R. (2009). Implications of using modification of diet in renal disease versus cockcroft--gault equations for renal dosing adjustments. *American Journal of Health-System Pharmacy*, *66*(2), 154-161.

iv. Harnden, K. E., Frayn, K. N., & Hodson, L. (2010). Dietary approaches to stop hypertension (dash) diet: applicability and acceptability to population. *Journal of Human Nutrition & Dietetics*, *23*(1), 3-10.

v. Blood pressure and your brain. (2009). *Harvard's men's health watch*, *14*(3), 4-7.

vi. Agatston, A. (2009). The Lowdown on high blood pressure. *Prevention*, *62*(2), 23-24.

vii. Salvatore, P., Parrinello, G., Fasullo, S., Sarullo, F. M., & Pasquale, P. D. (2009). Normal-sodium diet compared with low-sodium diet in compensated congestive heart failure: is sodium an old enemy or a new friend?. *Clinical Science*, *114*(3), 221-230.