Diabetes Sick Day Management

Summary:
A person with diabetes may get sick just like a person without diabetes. A “sick day” can be if a person with diabetes has an infection, surgery, trauma, an invasive procedure or a major life stress. To deal with the stress the body releases hormones to help fight the disease or the stress. However these hormones may raise the blood glucose and may interfere with the effects of insulin to lower your blood glucose.

So when you are sick it is harder to keep the blood glucose levels down. People with Type 1 Diabetes are at risk for developing Diabetic Ketoacidosis (DKA) which is a serious chemical imbalance caused by high blood glucose and inadequate insulin. People with Type 2 Diabetes are at risk for developing Hyperosmolar Hyperglycemia Nonketotic Syndrome (HHNKS) a similar imbalance. Both conditions are dangerous and can be life threatening.

Sign and symptoms of Diabetic Ketoacidosis (DKA):

- High blood glucose (usually over 300 mg/dl)
- Excessive levels of ketones in the urine or the blood
- Dry skin and tongue (indicates dehydration)
- Nausea and vomiting
- Abdominal pain
- Shortness of breathe, rapid breathing
- Decreased mental awareness or coma
- Fruity breathe smell

Sign and symptoms of Hyperosmolar Hyperglycemia Nonketotic Syndrome (HHNKS):

- High blood glucose of over 600 mg/dl
- No or very low ketones in the urine or blood
- Frequent urination
- Thirst
- Weakness
- Leg cramps
- Sunken eyeballs and rapid pulse (indicates dehydration)
- Decreased mental awareness or coma

What to do when you are sick (keep a record):

- Test blood glucose every 2 hours
- Test urine or blood ketones every 4 hours
- Test your temperature
- Take your medicine and adjust medicine (insulin) if indicated
- Maintain fluid replacement
- Keep track of your symptoms (thirst, urination, nausea, vomiting)

When to call the doctor:

- Blood glucose greater than 240 mg/dl with treatment for more than 8 hours and blood glucose greater then 400 mg/dl for more than 4 hours.
- Fever of 101 degrees or higher
- Nausea, vomiting and diarrhea for more than 4-6 hours
- Symptoms of dehydration (dry mouth, dry lips or thirst)
- Chest pain
- Confusion
- Trouble breathing or fruity breathe

Diabetic Medications:

- Continue your long acting insulin (Lantus or Levimir) as prescribed.
- Take your rapid acting insulin (Aprida, Humolog or Novolog) for carbohydrates consumed and for correction of high blood glucose
    - Correct high blood sugars based on your insulin correction bolus and adjustments your health care provider gives you
    - Ask you provider about using the following adjustments of rapid acting insulin if ill (**do not** use unless agreed by your health care provider)
        - Increase insulin:
            - 1 unit extra insulin per 50 mg/dl if blood glucose is above 250 mg/dl and no ketones or ketones are small or
            - 10% of total daily dose if blood glucose over 250 mg/dl and no ketones or ketones are small
        - Increase insulin
            - 1 unit extra insulin per 25 mg/dl if blood glucose is above 250 mg/dl and ketones are moderate to large
            - 20% of dose if blood glucose is over 250 mg/dl and ketones are moderate to large
- Continue your oral medication except for metformin
    - Metformin must be stopped if vomiting, diarrhea, difficulty breathing or serious illness
- Caution to extra medication for the illness. Over the counter medicine label should be checked for the effect on the blood glucose.

Diabetic Medication for low blood glucose:

- Some times during an illness when not eating or vomiting the blood glucose may go low, or hypoglycemia
- Glucagon emergency kit may be given based on the prescribed dose and if ketones are not moderate to large

Fluids during an illness:

- Child should receive one ounce of fluid per hour up to the age of 16 years. Older teens consume two cups per hour.
- Adults should consume one to two cups per hour.
- If vomiting drink one to two ounces fluids every 15 minutes

Liquids:

- In addition to water all types of liquid is important to maintain fluid.
    - Non carbohydrate fluid includes:
        - Water
        - Sugar free sodas and Sugar free beverages such as crystal lite.
        - Sugar free popsicles
        - Sugar free Jell-O
        - Bouillon
    - Carbohydrate contain fluids to consider during an illness especially if blood glucose is less than 180 mg/dl includes (10-15 grams of carbohydrates):
        - Sugar containing soda beverages (regular 7-UP, ginger ale, cola etc.) , ½ cup
        - Pedialyte or Infalyte (especially for younger children), 1 cup
        - Sports drinks (Gatorade, PowerAde, etc.), 1 cup
        - Tea with honey or sugar, 1 cup with 1 tablespoon
        - Fruit juices (Apple, 1/3 cup, Cranberry, ¼ cup, Grape, ½ cup, Grapefruit, ½ cup, Orange, ½ cup, Pineapple, 1/3 cup, etc.)
        - Fruit flavored drinks (regular Kool-Aid, lemonade, Hi-C, etc.), ½ cup
        - ell-o (For infants liquid Jell-o warmed in a bottle), ½ cup
        - Popsicles regular, 1 double stick
        - Broth type soup (chicken noodle soup, Cup-a Soup), 1 cup

Food for during an illness:

- It is important to take adequate calories on sick days or the body will break down fat for energy. This may affect the ketones in the urine or the blood.
- Much of eating is psychological so it is often suggested that you eat whatever you feel like eating on sick days.
- Liquid foods (above) are okay
- Soft food may help (list contains 10-15 grams of carbohydrates)
    - Saltine crackers, 6
    - Vanilla wafers, 5
    - Graham crackers, 3
    - Dry toast, 1 slice
    - Cooked cereal, ½ cup
    - Frozen yogurt, 1/3 cup
    - Regular ice cream, ½ cup
    - Sherbet, ¼ cup
    - Sugar free pudding, ½ cup
    - Regular pudding, ¼ cup
    - Custard, ½ cup
    - Regular Jell-O, ½ cup
    - Mashed potatoes, ½ cup
    - Rice, 1/3 cup
    - Banana, ½ small
    - Applesauce, ½ cup
    - Soup, broth based, 1 cup
    - Lifesavers, 4