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Patient Information on Hydrogen Breath Test

A hydrogen breath test provides information about the digestion of certain sugars or carbohydrates, such as milk sugar (lactose) or fruit sugar (fructose). This will help determine if you are intolerant to certain sugars. One example is the use of this test to detect lactose intolerance, a disorder in which people have symptoms from abnormal processing of lactose, a substance in many foods including milk and ice cream. The test is also used for detecting abnormal growth of bacteria within the small bowel by having the patient ingest lactulose. Bacterial overgrowth can cause a variety of symptoms including diarrhoea, bloating, gas and abdominal cramps.

Preparation for the test:

- For **FOUR (4) weeks** before your test you should not take any antibiotics, you should not have undergone a fluoroscopy test or any test that requires the cleansing of the bowel such as a colonoscopy or Barium enema.
- For **ONE (1) week** before your test do not take any laxatives or stool softeners, Milk of Magnesia, Ex-lax **or** stool bulking agents. **No** pre or pro biotics, **No** vitamins containing fructose or lactose, **No** PPI medication.

SUGGESTED DIET: For a minimum of 24 hours or up to 3 days if patient suffers with constipation.

FOODS TO AVOID:

- Grains and cereals, milk and dairy products, fruit and fruit derivatives, vegetables, nuts, seeds and beans, any foods and beverages containing high fructose corn syrup and sugar free foods, ketchup, honey, mustard, mayo etc.

SUGGESTED FOODS:

- Baked or grilled chicken, turkey or fish with low amounts of salt for flavouring only, plain steamed white rice, eggs, water,

THE DAY BEFORE YOUR TEST:

You may consume only the following foods and drinks: Plain white bread, plain white rice, plain white potatoes baked or boiled, chicken or fish, water non-flavoured, black coffee or tea. Only salt may be used to flavour your food. Butter or margarine is **NOT** permitted. Fizzy soda drinks are **NOT** permitted. **DO NOT EAT OR DRINK ANYTHING ELSE** – as this could give false results for the test. Specifically avoid

beans, pasta, fibre cereals or high fibre foods. The night before your test have an early dinner of rice and meat.

12 HOURS BEFORE YOUR TEST:

- You must stop eating and drinking 12 hours before the test. For example, if your test is at 9.00am you should stop eating and drinking at 9.00pm the night before.

THE DAY OF YOUR TEST:

- You should not eat or drink anything in the morning.
- If you are diabetic requiring insulin or diabetic tablets ask your Doctor if you should change your morning dose. Usually half of your normal long acting insulin is given. Oral diabetic medications are usually not taken that morning until your test is over and you start eating again.
- Two hours before the test please brush your teeth.
- Please bring your medications or a medication list to this appointment.

DO NOT EAT, DRINK, CHEW GUM, SMOKE TOBACCO, EAT MINTS OR SWEETS BEFORE OR DURING THE TEST.

DO NOT SLEEP OR EXERCISE WHILE THE TEST IS BEING DONE.

- Your test may last for 2 – 4 hours. Please allow plenty of time to complete the test

THE PROCEDURE:

- The nurse will make sure that you have not had anything to eat or drink after midnight.
- A breath sample will be collected
- A solution of lactose or lactulose will be given to drink.
- Breath samples will be collected and recorded at intervals during the test.
- During the test you should not eat, drink, chew gum, eat mints or sweets, smoke tobacco, sleep or exercise
- When the test is finished you may leave and you can return to your usual diet.
- The report will be sent to your doctor

Principles of Hydrogen Breath Testing

Hydrogen gas in the body is produced from intestinal bacteria. Bacteria which are normally in the large intestine produce hydrogen through fermentation of carbohydrates – such as lactose, lactulose and fructose which are substrates given for the hydrogen breath test. Some of the hydrogen produced by the bacteria is absorbed by intestinal mucosa whereby it enters the vasculature and is transported to the lungs. Hydrogen is then exhaled by the lungs by normal breathing.

In small intestinal bacterial overgrowth the small intestinal bacteria metabolize the lactulose given and produce an early rise in the breath hydrogen.

In lactose intolerance the individual has a deficiency in lactase the enzyme that breaks down lactose. Normally lactose is broken down in the small intestine by lactase and very little lactose reaches the large intestine where the bacteria break it down to produce hydrogen. In lactose intolerance (lactase deficiency) the ingested lactose is not metabolized in the small intestine and reaches the colon where it is metabolized by colonic bacteria producing a large amount of hydrogen which is measured in the breath sample.