

I do not have diabetes! I have been diagnosed with **post-bariatric hypoglycemia or reactive hypoglycemia**, and am under the care of the **Hypoglycemia Clinic** team, led by Dr. Mary Elizabeth Patti, MD, endocrinologist at Joslin.

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Hypoglycemia is an increasingly recognized syndrome which can be severe, disabling, life threatening, and challenging to treat. **Key elements** include:

- Hypoglycemia usually occurs 1-3 hours after eating, and is usually not observed after an overnight or longer fast.
- Hypoglycemia is more likely to occur after ingestion of high carbohydrate foods or liquids, but can also occur in response to activity, stress, or prolonged intervals between meals/snacks.
- Hypoglycemia often follows a “spike” in glucose, which can sometimes be over 200 or even higher. This does not mean that the person has diabetes, and **insulin treatment is not required**. The glucose will fall quickly on its own.
- Hypoglycemia in this condition is often associated with hypoglycemia unawareness, leading to neuroglycopenia as the first manifestation (altered cognition, loss of consciousness, seizure). If this occurs, patients may not recognize hypoglycemia and require the assistance of others.

**Contributors** to the glucose “spikes” and “lows” in this syndrome in individuals following gastric surgery include abnormalities in metabolism after eating:

- rapid carbohydrate absorption (due to rapid gastric emptying with multiple forms of gastrointestinal surgery)
- increased secretion of many hormones from the intestine which regulate metabolism (incretin hormones such as GLP1 and others)
- excess insulin secretion after meals

#### **Chronic treatment includes:**

- Rigorous dietary management focused on low glycemic index diet with protein rich snacking every 2 hours, as well as avoiding triggers such as caffeine, alcohol, and sugar-sweetened beverages.
- If diet alone is not effective, patients may require pharmacotherapy such as acarbose, octreotide, or diazoxide.
- Patients should check their blood glucose regularly; some have a continuous glucose monitor.

**Implications for inpatient or ER management:** Traditional hypoglycemia management protocols designed for the treatment of diabetes-related hypoglycemia may be ineffective and/or lead to recurrent hypoglycemia.

- This patient may need to eat small quantities of food every 2-3 hours to avoid hypoglycemia
- This patient has an outpatient treatment plan with specific dietary recommendations that may include limiting carbohydrate intake at meals to 30 grams, and snacks to 15 grams; avoidance of all high glycemic index carbohydrates, and pair low glycemic index carbs with healthy fats and proteins to slow absorption. Drinking fluids with meals should also be avoided. Caffeine should be limited. A dietician experienced in this syndrome is essential.
- This patient may require blood glucose checks post meal (1 -2 hours post meal), rather than pre-meal.
- **Treating hypoglycemia** per hospital protocol may need to be modified, as treating a low BG in these patients with juice or only simple carbohydrates (e.g. crackers) may result in rebound hypoglycemia.
  - **Glucose tablets are recommended.** For a BG of < 70, provide 3-4 tablets (totaling 15 grams carbohydrate), and recheck in 15 minutes, and repeat if BG is < 80mg/dl.
  - **Avoid juice.** If using juice, 4 oz would be a starting dose to provide 15 g of carbohydrate.
  - If a patient is treated with acarbose, glucose is mandated as absorption of other carbs will be slowed.
  - If oral treatment is not possible, consider glucagon injection or ½ amp of D50. Higher doses often lead to rebound hyperglycemia and recurrent hypoglycemia, so recommend judicious use of glucose.
  - After treatment provide patient with a snack containing 15 g carbohydrate and 10 g fat (e.g. small apple and ¼ cup full fat cottage cheese).

**Resources** (including reviews of syndrome, nutritional management, others) available at:

**<https://www.joslin.org/care/Hypoglycemia-Clinic.html>**