Anesthesia and type 1 diabetes

Dr. Karen Carlson shares information that you should know if you or your child with type 1 diabetes ever needs to have anesthesia for a procedure or surgery.

Time of surgery:
Ideally surgery should be scheduled in order to keep the “fasting” period as short as possible or to disrupt the meal schedule as little as possible. Normally, that would mean first thing in the morning, preferably first case in the OR so surgery won’t be delayed if previous cases go longer than scheduled. However, if it’s summer time and your child is a teenager who is used to sleeping until noon, late morning would be fine.

Who will be managing the patient’s diabetes/insulin?
The anesthesiologist will manage the patient’s diabetes and insulin during surgery. Therefore the anesthesiologist should be knowledgeable and comfortable managing type 1 diabetes or the anesthesiologist should work with your child’s endocrinologist to come up with the plan for diabetes management.

What should you do with their insulin?
The most important thing to know is NOT to discontinue the insulin pump or skip the basal insulin unless it’s going to be replaced by other insulin during the surgery. People with type 1 diabetes can go into ketoacidosis within 3 hours of stopping a pump.

How long will the patient have to fast? How late can they have clear liquids?
Recommendations vary, so you should check with your anesthesiologist. National guidelines suggest that you can safely have clear liquids (water, black coffee or tea, soft drinks, apple juice) up to 2 hours before your surgery. Milk or food should be held for at least six hours to decrease the risk of vomiting and aspiration.
What happens if blood sugar is low on the morning of surgery, but the patient isn't supposed to eat or drink anything?
If a blood sugar is low, you must treat it with 4 ounces of a sugar-containing clear liquid. This includes soft drinks or juices without pulp. A 4 ounce juice box like they use at Camp is perfect. Of course check your sugar in 15 minutes and repeat until the blood sugar is above 100. If this happens, let your anesthesiologist know. It might delay surgery a little bit, but it shouldn’t cancel it. If you use orange juice, milk or food to treat the low, it could delay the procedure for 6-8 hours or possibly cancel it for the day.

What is the target BG range for the day of the procedure?
The goal of diabetes management for the day of the procedure (and even a few days after) is to avoid low blood sugars and maintain reasonable control. Target blood sugar range is 100-200. If you correct a high blood sugar before surgery, use 150 as your target. The signs and symptoms of low blood sugar (shakiness, sweating, etc) are all masked under general anesthesia, so we are not trying for “tight” control during the procedure. Do not be concerned about your A1c if your BG runs a little high.

What information does your anesthesiologist need to know?
What dose and type of insulin the patient is on, when the last injection or bolus was and what the basal rate is and will be during the procedure.
What the last A1c was. This gives us an idea of what the average blood sugar has been for the last 2-3 months.
What are the patient’s signs and symptoms of low blood sugar and at what number does the patient begin to feel them.

Thank you, Dr. Carlson
Karen T. Carlson, MD, MBA, is Chief of the Division of Ambulatory Anesthesia and Assistant Professor at Emory University School of Medicine. She is also one of Camp Kudzu’s founders.

![Image of Dr. Karen T. Carlson](image)