

## EMERGENCY EVALUATION OF HYPOGLYCEMIA

At baseline, draw:

- electrolytes including anion gap, glucose, capillary pH, urinalysis (including ketones)
- lactate, ammonia, uric acid,  $\beta$ -hydroxybutyrate, triglycerides, and cholesterol

Consider also:

- plasma amino acid profile, acylcarnitine profile (serum and bloodspot), free fatty acids
- AST, ALT, GGT, CK
- insulin, growth hormone, cortisol
- thyroid function tests, IGF-I, prolactin
- blood and urine for oral hypoglycemics if suspecting surreptitious use

Start prolonged fast:

- 8–12 h for babies, 24–48 h for kids, 48–72 h for adolescents; give *ad lib* water.
- Check all urines for ketones: be wary if still negative after 18–24 h.
- Check blood glucose q4h by meter, then q1–2 h until end (depends on patient's age).
- If patient symptomatic, check glucose by meter STAT; if  $\leq 2.8$ , confirm with STAT lab glucose; if this is also  $\leq 2.8$ , then draw labs\* below:
- If patient asymptomatic but meter  $\leq 3.0$ , confirm with a lab glucose; if this is also  $\leq 3.0$ , either draw labs\* below or follow very carefully with frequent glucoses by meter to see if patient counterregulates or goes  $\leq 2.8$ .
- \*When patient symptomatic and  $\leq 2.8$  or asymptomatic and  $\leq 3.0$ , then draw:
  - electrolytes including anion gap, glucose, capillary pH
  - lactate, ammonia, uric acid,  $\beta$ -hydroxybutyrate, triglycerides, cholesterol
  - plasma amino acids, acylcarnitine profile (serum and bloodspot), free fatty acids
  - insulin, cortisol, growth hormone
  - urine for ketones
  - urinary organic acids (catheterize if necessary to get urine quickly!)
- Consider also:
  - AST, ALT, GGT, CK
  - proinsulin, C-peptide if suspecting insulinoma or surreptitious insulin injection
- If performing a glucagon test, immediately give IM dose (0.03 mg/kg, maximum 1 mg, check glucose by meter q5 min  $\times$  20 min; document a rise with a lab glucose.
- Otherwise, feed patient immediately or give D10/W IV (2 cc/kg).

### BE VERY CAUTIOUS IN PATIENTS WITH H/O HYPOGLYCEMIC SEIZURES!

**\*\*THE GOLDEN BLOOD SPECIMEN:** obtained at the time a patient presents to the ER with hypoglycemia. Unless the patient is a diabetic having an insulin reaction, this specimen will likely provide a diagnosis without the need for a prolonged fast. Call Chemistry Lab (samples are saved for 48–72 h) and ask to have original serum/plasma specimen(s) frozen until further notice. If patient not treated, obtain more blood (5 cc in a red top to Endocrine Lab for storage will do) and urine (20 cc to Endocrine Lab for storage) STAT. Treat patient.

Reference: *J Pediatr* 2015;167(2):238–245.