HYPOGLYCEMIA

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A mother brings to your clinic a one month old male baby stating that he is sleepy and hypoactive all the time. And on several occasions she saw him smacking his lips repeatedly. This has been happening since birth.

He is a product of 39 week gestation, born vaginally. Birth weight 2.6 Kg.

Patient was discharged home with mom the next day.

Patient is breast fed exclusively, mother feeds him on demand every 2-3 hours and feels he eats well. He has gained 0.4 kg since birth.

What other questions would you ask the mother?

- Maternal gestational diabetes
- Hx of Jaundice
- Hx of fever
- Family hx of any metabolic or congenital problems
- Hx of neonatal or infant deaths
- Family Hx of seizures
- Hx of vomiting and diarrhea

On Physical exam the baby is sleeping, not in distress, not jaundiced, pale or cyanosed.

Weight 3.0Kg, length40 cm, Head circumference 38 cm.

Temp 36.5 orally, HR 120/min, RR 30/min, BP 78/40 mmHg

Capillary refill <2 sec, SaO2 96% , Gluco check 45mg/dl

The physical exam of head and neck, chest and abdomen was normal.

What parts of the exam would you concentrate on?

- Level of consciousness and anterior fontanel
- Cleft lip and/or palate
- Macroglossia
- Hemihypertrophy
- Micropenis or ambiguous genitalia
- Hepatomegaly
- Skin hyperpigmentation

- What is your next step?

Correct hypoglycemia with a D10W bolus of 1gm/kg (in our patient that will be 30ml)

Follow up in 30 minutes by rechecking the glucose if still low start continuous infusion of dextrose containing fluids

If hypoglycemia recurs send a critical sample for Insulin, C Peptide, Cortisol, and Growth Hormone

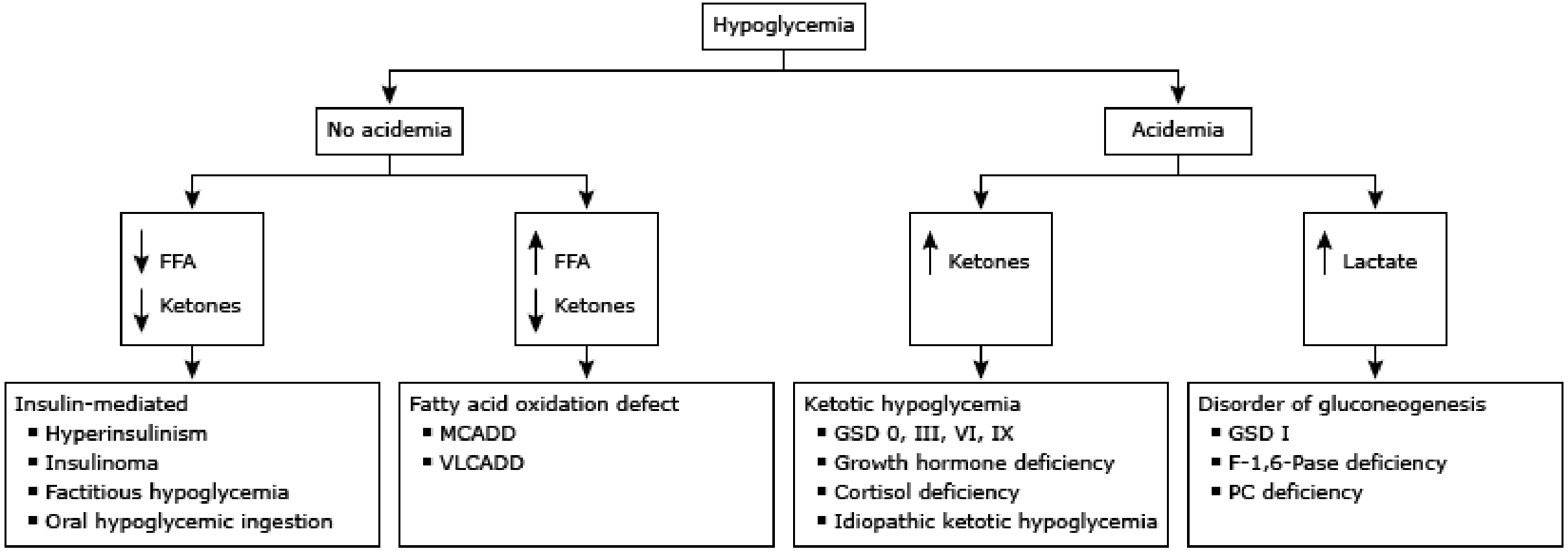
What other labs would you send to work up repeated hypoglycemia?

- Ketones
- Lactate
- Liver function
- Blood gas

What would be your differential diagnosis?

- Sepsis
- Liver failure
- Hyperinsulism
- Fatty acid oxidation disorders
- Glycogen storage disorders(type I, III,VI, IX)
- Hormanal: Hypopitutarism , Adrenal Insufficiency
- Drug overdose (oral hypoglycemics, B Blockers, ethanol, Salicylates)
- Metabolic (Galactosemia, Pyruvate carboxylate deficiency)
- Facticious (Munchhausen by Proxy Syndrome)

Categorization of hypoglycemic disorders based on biochemical profile



Schematic representation of the biochemical profile obtained on the critical sample obtained during an episode of hypoglycemia. The biochemical profile helps to identify the pathophysiologic category of the underlying hypoglycemic disorder.

FFA: free fatty acid; MCADD: medium-chain acyl-CoA dehydrogenase deficiency; VLCADD: very-long-chain acyl-CoA dehydrogenase deficiency; GSD: glycogen storage disease; F-1,6-Pase: fructose-1,6-bisphosphatase; PC: pyruvate

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Hypoglycemia is defined as a plasma glucose level that is low enough to cause signs and symptoms of brain dysfunction (neuroglycopenic symptoms)

- In infants less than two days of age glucose <50 mg/dl
- In infants >three days and older children Glucose < 60mg/dl

CLINICAL FEATURES

Symptoms of hypoglycemia can be divided into neurogenic and neuroglycopenic symptoms:

- **Neurogenic (autonomic)** symptoms are caused by the sympathetic nervous system's response to hypoglycemia and appear when the plasma glucose is less than 55 to 60 mg/dL. Manifestations are sweating, tremor, palpitations, tachycardia, and hunger.

- **Neuroglycopenic** symptoms result from insufficient supply of glucose to the brain, leading to brain dysfunction. They include lethargy, confusion, irritability, loss of consciousness, and seizure. Neuroglycopenic symptoms typically occur when the plasma glucose falls below 50 mg/dL