Interesting Cases

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Disclosure

- Speaker for Corcept

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Different causes of glycose dysfunction

- Hyperglycemia
- Hypoglycemia
- Hyperglycemia

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Franky

- 32 yo male presenting with weight gain and fatigue over the past few months
- Recent T2DM diagnosis with A1c = 7.3 %
- No medications

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As a specialist, what should you be thinking?

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- Poor dietary choices
- Stress
- OSA
- Caffeine
- Thyroid dysfunction
- Pancreatic disease
- Polyendocrine Metabolic Ovarian Syndrome
- Pheochromocytoma
- Hypercortisolemia
- Medication use (Statin/Steroid)
- Chemotherapy

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What testing is appropriate at this time?

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- Poor dietary choices
- Stress
- OSA
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- Polyendocrine Metabolic Ovarian Syndrome
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- Chemotherapy
- Thyroid dysfunction
- Pancreatic disease

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- What is the thyroid function?
  - TSH = 14.6

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Why is hypothyroidism causing Hyperglycemia?

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- Changes blood flow to skeletal muscle
  - Changes absorption of glucose tissues can absorb
- Causes mitochondrial changes
  - How efficiently cells can “burn” glucose
- Direct changes to insulin resistance related to weight gain

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What about hyperthyroid?

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- Gluconeogenesis & Glycogenolysis in the liver
- Rapid glucose absorption in gut
- Rapid metabolism of insulin

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Treatment?

- Levothyroxine
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- Methimazole
- Is it transient?

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Mark

- 60 yo M referred for glucose control after resection of tail of pancreas
- Medication: Octreotide

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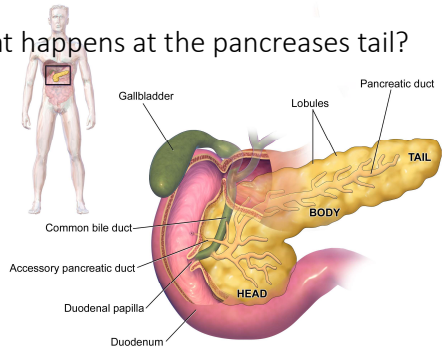
What happens at the pancreases tail?



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What do you need to know?

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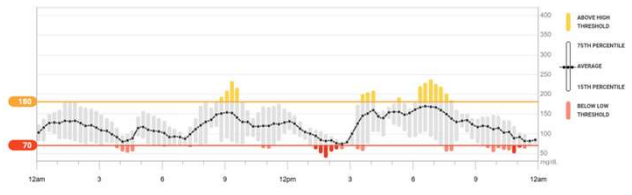

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What is the definition of Hypoglycemia?

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Whipple Triad

- Low glucose (<70)
- Symptoms of Hypoglycemia
- Immediate symptom resolution after glucose administration

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Causes of Hypoglycemia

Exogenous
- Anti-Diabetic Medications
  - Insulin secretagogues / Insulin
- Alcohol-Induced
  - Blocking of gluconeogenesis = low fasting glucose
- Chemotherapy/Medications

Endogenous
- Insulinoma
- Nesidioblastosis

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Fasting Lab Testing

- C-peptide - ↑
- Insulin level - ↑
- Proinsulin level - ↑
- Glucose levels – 40mg/dl
- Sulfonylurea - neg

- C-peptide - nl
- Insulin level - nl
- Proinsulin level - nl
- Glucose levels – 72 mg/dl
- Sulfonylurea - neg

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What is Octreotide?

- Somatostatin analogue
- Inhibits insulin and glucagon

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Therapeutic options

Insulinoma
- Surgery
- Diazoxide
- Somatostatin analog
  - Octreotide / Lanreotide

Nessidioblastosis
- Low-carb/low-glycemic index food
- Acarbose
- Diazoxide
- Somatostatin analog
- Distal pancreatectomy

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Mahealani

- 65 yo M diagnosed x 2012 w T2DM
- Poor diet
- Started on insulin x 2014
- Struggled with glucose control

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Medical History

- HTN
- Dyslipidemia
- BMI 24

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DM Medication

- CGM
- Tirzepetide 15 mg weekly
- Metformin 1gm BID
- Humulin U500
  - Breakfast – 160 units
  - Lunch – 160 units
  - Dinner – 130 units

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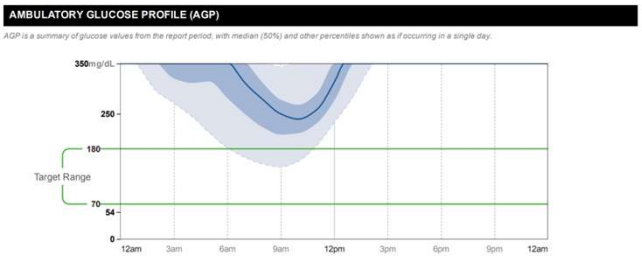

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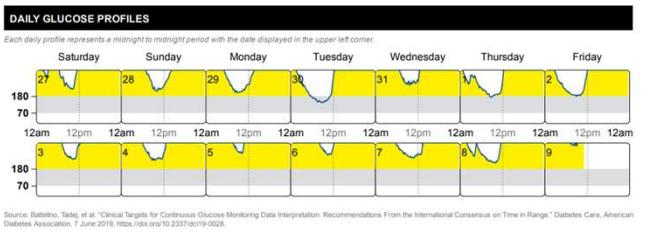

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Why does his glucose not improve?

What are the different causes of Hyperglycemia?

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- Not taking insulin
- Poor dietary choices
- Stress
- OSA
- Caffeine
- Polyendocrine Metabolic Ovarian Syndrome
- Pheochromocytoma
- Hypothyroid
- Hypercortisolemia
- Medication use (Statin/Steroid)

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What test(s) should be done?

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- Adjust/change medications
- Plasma metanephrines?
- Thyroid function studies?
- Sleep studies?

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Labs

- Glucose 395 mg/dl
- C-peptide - ↑
- TSH 1.6
- GFR 37

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Dexamethasone Suppression Test

- Dexamethasone 517
- Cortisol 1.9
- CT Abdomen – No masses/adenomas

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Diagnostic Criteria for Hypercortisolemia

- 24 hour UFC
- Salivary Cortisol
- Dexamethasone Suppression Testing

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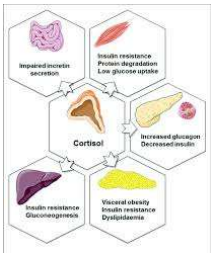
Hyperglycemia in Hypercortisolemia

- Stimulation of gluconeogenesis
- Inhibit glucose uptake
- Promotes Lipolysis



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Neoplastic vs Non-neoplastic disease

- Non-neoplastic
  - Can the adenoma not be seen?
  - Is it from overstimulation of HPA axis?
  - Is Surgery an option?
- Neoplastic
  - Surgery?
  - Whuch side?

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Therapeutic Management & Intervention

Etiological
- Surgical intervention

Pharmacological
- Adrenal steroidogenesis inhibitor
  - Ketoconazole
  - Levoketoconazole
  - Metyrapone
  - Osilodrostat
- Glucocorticoid receptor antagonist
  - Mifepristone

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Question time…….

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