CC Discussion

James J. Cappola, III,M.D.,FACP

Chair and Associate Professor of Internal Medicine

CUSOM

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CAMPBELL UNIVERSITY | Jerry M. Wallace School of Osteopathic Medicine

A previously healthy, 45-year old woman presents to the ED with a fast heart rate and fatigue. Over the last year, she has had a sinus tachycardia of unclear etiology.

Meds:
Diltiazem CD 180 mg po daily

In the ED:

General: Chronically ill underweight woman who appears fatigued

Vital signs: bp: 95/70 p 120 RR 20 temp 98.9F O2 sat 95% RA

HEENT:	PERRL; EOMI Oropharynx: no exudate
Neck:	full ROM; no lymphadenopathy no thyroid masses or thyromegaly
Car:	r/r/r, tachycardic without murmur
Lungs:	CTA
Abd:	scaphoid, soft, mild to moderate diffuse tenderness without guarding, rebound or organomegaly

Extremities: intact distal pulses, no edema

Neuro:
CNs II through XII intact
Motor: 5/5 throughout
Sensory: grossly intact throughout
Reflexes: 1+ throughout

Skin: findings
as follows

Na	132
K	4.8
CL	100
CO2	22
BUN	5
Cr	1.3
Glc	**44**

D50W
1 amp

82 mg/dl

50 mg/dl

EKG: sinus tachycardia,normal axis, normal PR, QRS and QTc intervals, no other acute changes.

CBC normal

TSH normal

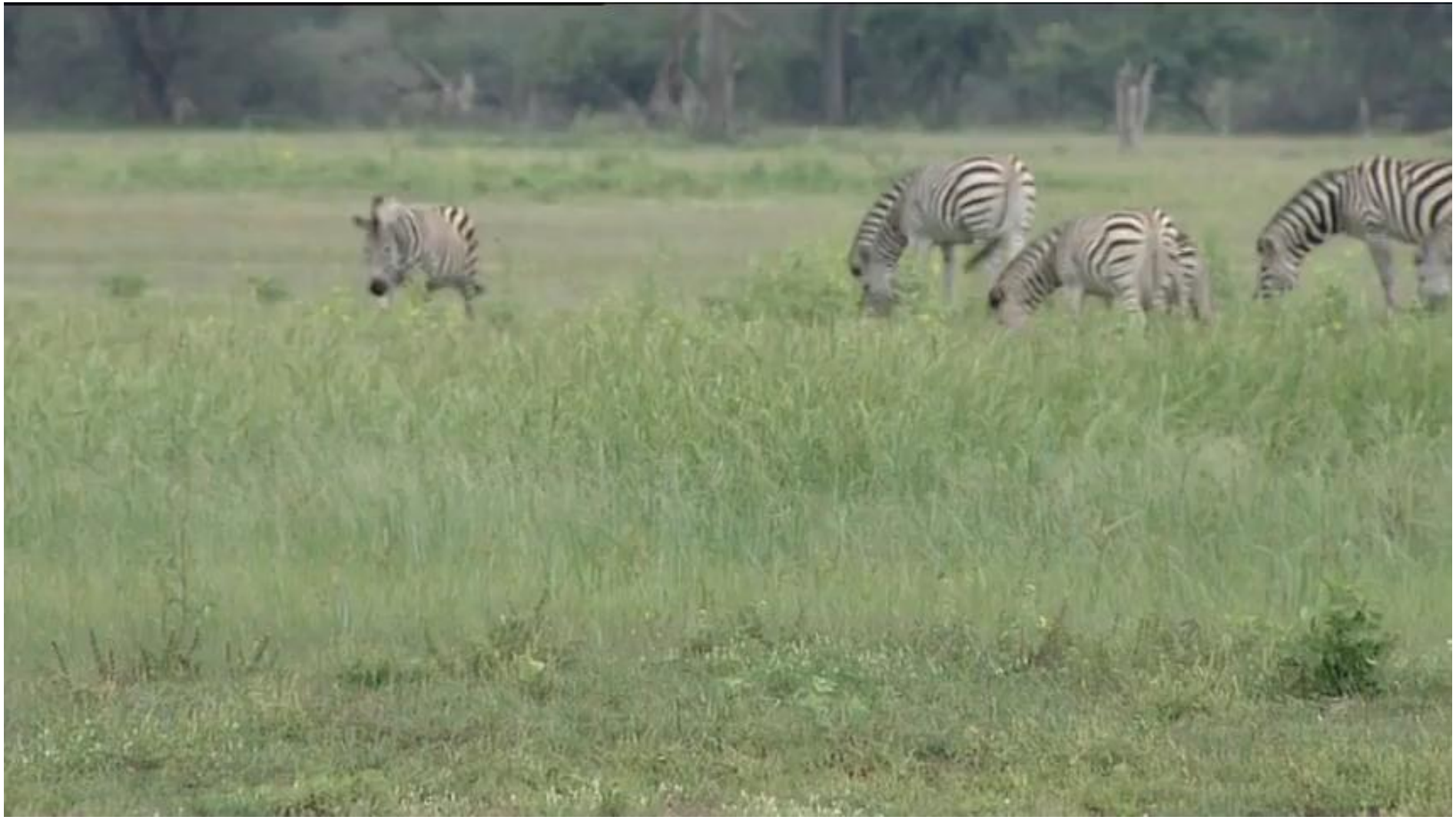
A 45-year-old woman with a one-year history of palpitations, weight loss, nausea, now presenting with hypotension, tachycardia, hypoglycemia, hyponatremia: ddx

- Dehydration
- Sepsis
- Acute coronary syndrome
- Thyrotoxicosis
- *Zebra*

When to suspect a “Zebra”

- A year of palpitations with evidence of sinus tachycardia
- Constitutional symptoms of weight loss, nausea
- Refractory hypoglycemia
- No clear source for systemic infection

Catch That Zebra!



Catching a Zebra: Cosyntropin Stimulation Test

Step 1	Check baseline serum ACTH and cortisol levels. **This patient was crashing, so I was *not* going to wait until 8 am the next day**
Step 2	Administer Cosyntropin 250 mcg IV x 1
Step 3	Repeat serum cortisol level 30 minutes after Cosyntropin
Step 4	Repeat serum cortisol level 60 minutes after Cosyntropin

At the same time:

- Aggressive hydration with glucose-containing IVFs, ex: D5 NS
- Empiric treatment for sepsis
- If unstable **(she was)** start stress-dose dexamethasone 4 mg IV q 8 hours
- Dexamethasone is a synthetic glucocorticoid which will not interfere with measurement of endogenous cortisol

Catching a Zebra: Cosyntropin Stimulation Test

Lab value	Patient Value	Normal Range
Baseline ACTH	**312 pg/ml**	10-60 pg/ml 8 am < 20 pg/ml 4pm
Baseline cortisol	**0.4 mcg/dl**	10-20 mcg/dl 8 am 3 to 10 mc/dl 4 pm
Repeat serum cortisol level 30 minutes after Cosyntropin	**0.4 mcg/dl**	> 20 mcg/dl
Repeat serum cortisol level 60 minutes after Cosyntropin	**0.4 mcg/dl**	> 20 mcg/dl

A cortisol level > 20 mcg/dl at any point in the test indicates **normal** adrenal function

Primary Adrenal Insufficiency/ Addison's Disease with Adrenal Crisis

Initial Evaluation and Management of Adrenal Insufficiency . . .Summary of Clinical Features

- Weakness, fatigue
- Anorexia
- Weight loss
- Nausea
- Vomiting
- Abdominal pain
- Salt craving

Initial Evaluation and Management of Adrenal Insufficiency . . .Summary of Clinical Features

- Postural dizziness
- Hypotension
- Hyperpigmentation
- Hyponatremia
- Hyperkalemia
- Eosinophilia

Initial Evaluation and Management of Adrenal Failure . . .Patient follow up

- Since patient was hemodynamically unstable with serious electrolyte abnormalities:
  - Hospitalized in ICU
  - Stress-dose glucocorticoids (ex: dexamethasone 4 mg IV q8hrs or hydrocortisone 100 mg IV q8hrs)

- Within about four to six hours, she was hemodynamically back to normal and her blood glucose normalized and her IVFs were tapered to off

- Work up for concurrent precipitating illness including sepsis, ACS was negative

Initial Evaluation and Management of Adrenal Failure . . .Patient follow up

- As patient's condition improved, glucocorticoids tapered to a physiologic replacement regimen:
  - Hydrocortisone 10 mg po q am PLUS hydrocortisone 5 mg po qpm (at 2 pm)
  - Consider adding fludrocortisone for mineralocorticoid replacement 0.1 to 0.2 mg po daily

- Outpatient endocrine follow up
  - Medical alert bracelet
  - Individualized plan to increase glucocorticoid replacement in the event of a future acute illness

Endocrine Zebras: First Steps to Catch and Manage Them . . .

Diagnosis	First Diagnostic Steps	Initial Management

Addison's Disease	• Cosyntropin stimulation test:
	  • 8 am ACTH
	  • 8 am cortisol
	  • Then administer cosyntropin 250 mcg IV x 1
	  • Repeat cortisol levels 30 minutes and 60 minutes after cosyntropin
	• Cortisol level > 20 mcg/dl at any point indicates **normal** adrenal function
	• 30-minute or 60-minute cortisol level < 20 mcg/dl after cosyntropin indicates adrenal failure
		• Physiologic glucocorticoid replacement *in the absence of an acute illness* is usually: Hydrocortisone 10 mg po qam and 5 mg po qpm
		• **BUT LOW THRESHOLD TO HOSPITALIZE TO EXPEDITE WORK UP OR FOR**
		  • **Hypotension**
		  • **Hypoglycemia**
		  • **Electrolyte abnormalities**
		  • **Other clinical instability**

Questions?

Thank you!