

PCOS 101

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Women's Health Case Discussion
03/27/2024

Case Presentation

- 23 year old female coming in for CPE & her first PAP as she recently became sexually active with her partner
- No PMHx, but notes that her periods have been irregular since menarche at around 10 years old.
- At approx. 12 years old, she states that she saw a gynecologist who “ruled out PCOS” and started her on birth control pills to regulate her periods. She continued this for ~10 years with regular periods and then stopped the pills about 1 year ago because she didn’t like the way they made her feel.
- Since then, she continues to have irregular periods – approximately 1 period every 6-12 weeks, no spotting in between.

Exam

- VSS
- BMI 27
- Full physical exam including PAP was otherwise WNL
- No signs of acne, hirsutism

- Patient states the irregular periods don't really bother her and she doesn't mind using condoms instead of OCP's for birth control. Does she really need further workup? Even if she has PCOS, is there a reason to treat it if it doesn't bother her?

PCOS – Polycystic Ovarian Syndrome

8-13% of women of childbearing age

“Syndrome” - Complex, multifactorial pathology

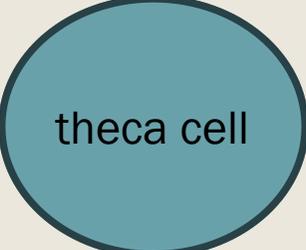
- Genetic and environmental factors
- Deficient signaling in the HPO axis
- Hyperandrogenism
- Insulin resistance
- Metabolic (DM), dermatologic (hirsutism, acne), gynecologic features (anovulation)



GnRH



LH



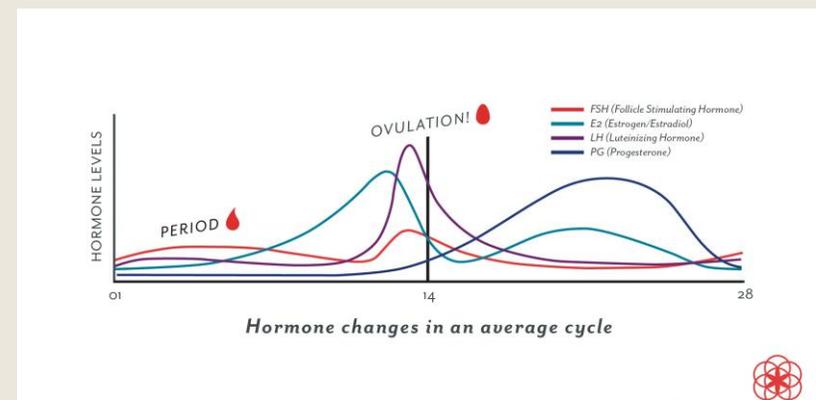
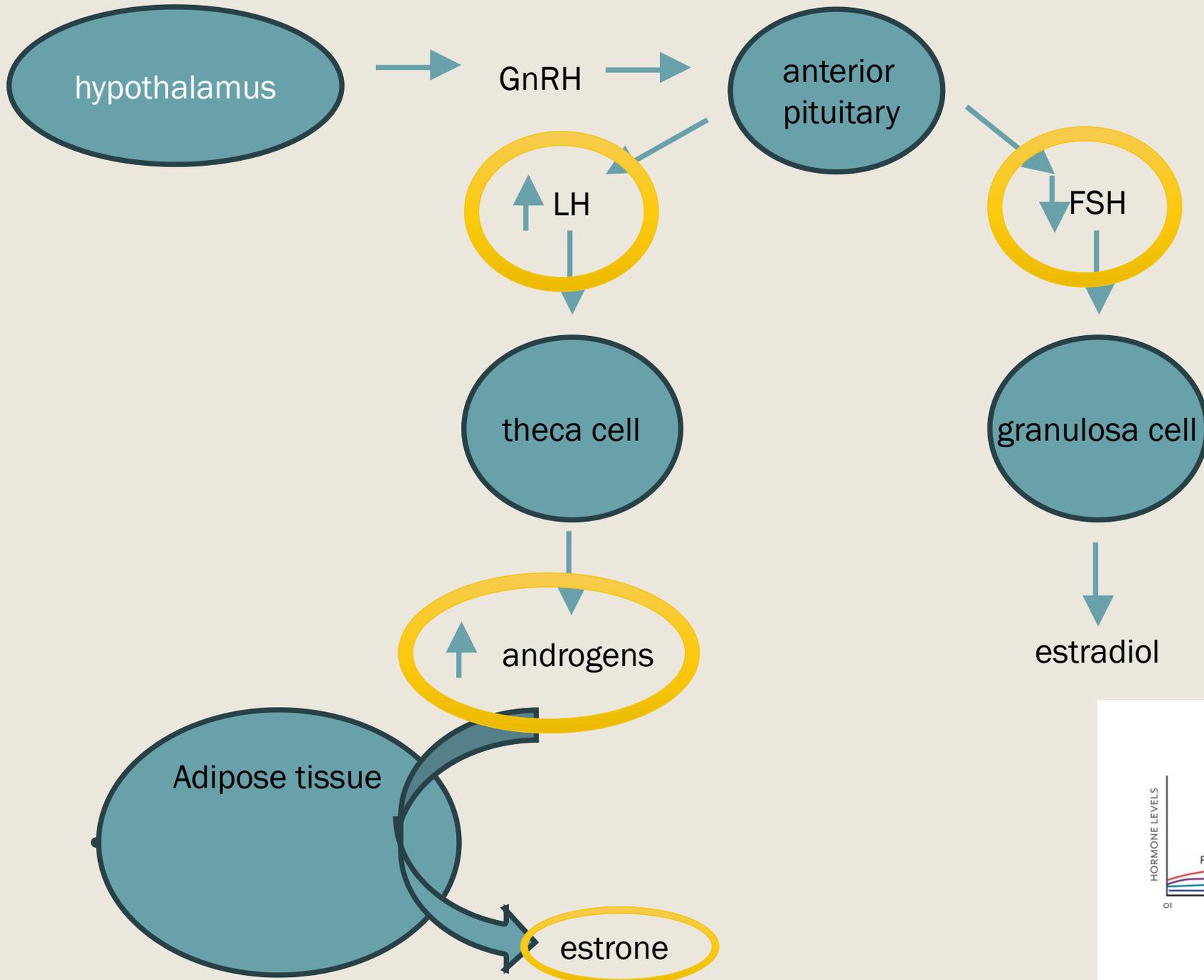
androgens

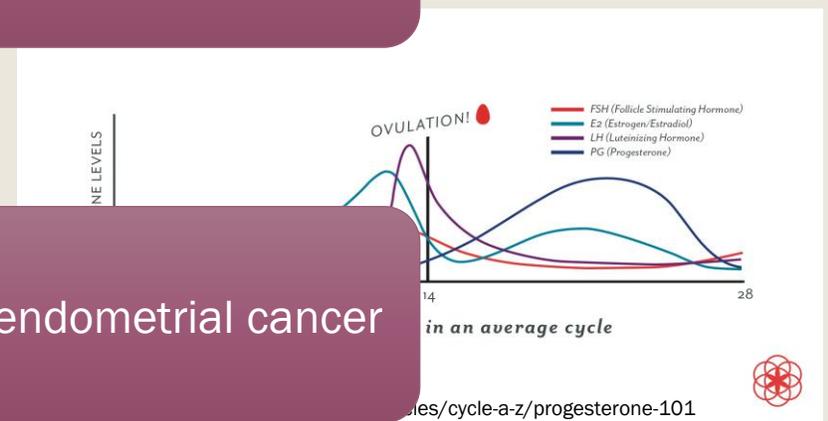
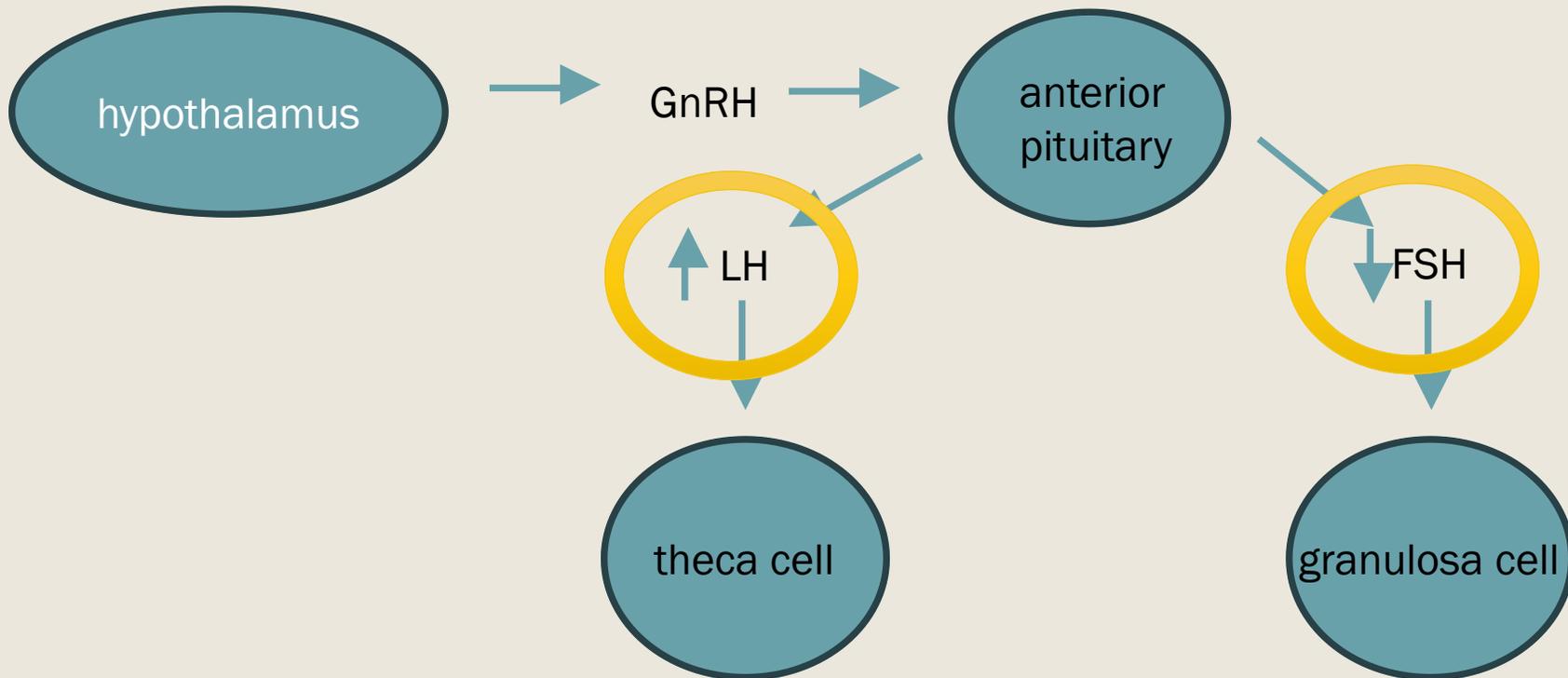


FSH



estradiol





Risk for endometrial cancer



Case Presentation

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- → Recommended to **wait at least 4-6 weeks** after stopping hormonal contraception to check labs for hyperandrogenism

Case Presentation

TSH

Total testosterone

- OK – so how do we test for it?

- And will the birth control that I was on mess the results up?

- → Recommended to [wait at least 4-6 weeks](#) after stopping hormonal contraception to check labs for hyperandrogenism

FSH

DHEAS

PRL

Beta HCG

Free testosterone

Androstenedione

Serum 17 hydroxyprogesterone

LH

AMH



2003 Rotterdam Criteria

- 2 of 3 of the following criteria:
 - *Oligo or Anovulation (<8 cycles per year)*
 - *Hyperandrogenism*
 - Clinical: hirsutism, androgenic alopecia, excessive acne, or seborrhea
 - Biochemical: elevated total testosterone, low FSH
 - *Polycystic ovaries on ultrasound*



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 - Within 8 years of menarche, up to 40% have PCO's; need other sx for 2 years

Exclude other disorders

Condition	Test
Pregnancy	Beta Hcg
Thyroid dysfunction	TSH
Hyperprolactinemia	PRL > 40
Nonclassic congenital adrenal hyperplasia (21 hydroxylase deficiency)	Serum 17-hydroxyprogesterone

PRL

TSH

Total testosterone

~~AMH~~

FSH

~~DHEAS~~

~~Free testosterone~~

~~Androstenedione~~

Beta HCG

Serum 17 hydroxyprogesterone

~~LH~~

What NOT to Order

- **LH** – released in a pulsatile fashion
- **Free testosterone** – assays are usually inaccurate
- **DHEAS** – rare adrenocortical carcinoma; only check if rapid virilization
- **Androstenedione** – unclear association
- **AMH** – no international standardization of testing; not recommended
- **Estradiol** – normal to low in all types secondary amenorrhea (except obstruction)

Case Presentation

- Order: total testosterone, FSH, pregnancy test, PRL, TSH, serum 17 hydroxyprogesterone
- Also order: transvaginal ultrasound.
- Patient asks: “Do I need to do the ultrasound too?”

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- Order: total testosterone, FSH, pregnancy test, PRL, TSH, serum 17 hydroxyprogesterone
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- Patient asks: “Do I need to do the ultrasound too?”
 - *No, we may meet the Rotterdam Criteria based on symptoms and labs, but practically it makes sense to order at this appointment in case we do need it*

Case Presentation #2

- 29 year old female, recently immigrated from the Middle East to complete a graduate program in Los Angeles
- Here for **physical** and to establish care
- Diagnosed with **PCOS** within the last year and was started on **COC pills and spironolactone**, but has not had refills since moving
- Was “**menstruating**” regularly on **COC’s** but **hasn’t had a period** since running out of medications 2 months ago

Case Presentation #2

- VSS
 - BMI 24
 - Inflammatory acne along jaw line and upper back
 - Increased hair over upper arms (patient points this out to you)
 - Otherwise, exam WNL
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- “The periods and the hair doesn’t really bother me – I’m mainly concerned about the acne. That’s what the spironolactone was for, right? Can I just go back on the spironolactone for now? Or if I need to go back on birth control, can I do anything besides the pill I was on before? I kind of like not having periods...”

Treatment

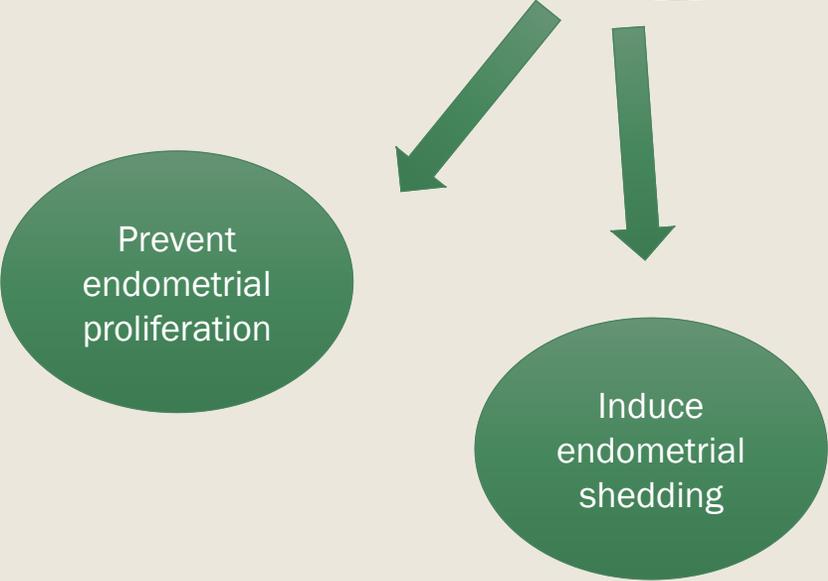
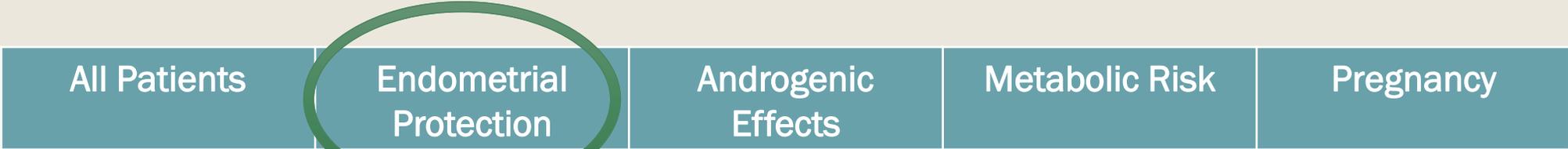
All Patients	Endometrial Protection	Androgenic Effects	Metabolic Risk	Pregnancy
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Treatment



Lifestyle Measures
Healthy Diet
Exercise
Smoking Cessation

Treatment



1 st line	2 nd line (cycle regulation)
Levonorgestrel IUD	Progestin-only Pills
Combined Oral Contraceptives (20-30mcg EE)	Metformin

Treatment

All Patients	Endometrial Protection	Androgenic Effects	Metabolic Risk	Pregnancy
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1 st line	2 nd line
Combined Oral Contraceptives	Spironolactone 50-100mg BID - Add to COC if no improvement in 6m

Treatment



1st line
Metformin 1500 daily in patients with significant Metabolic Syndrome

1st line
Clomiphene citrate (FDA approved)
Letrozole (anecdotally works better)

Case Presentation #2 – Treatment Plan

- Counsel on healthy lifestyle factors
- Will trial COC for both endometrial protection and for acne, patient is amenable, will consider Spironolactone in 6 months if needed
- BMI <25, no MTF
- Not interested in getting pregnant, no Letrozole or Clomiphene
- What else does she need for her physical?

Case Presentation #2

CPE in PCOS - What should we screen for?

- HTN?
- Lipid panel?
- Dysglycemia?
- Obstructive sleep apnea?
- Depression?
- NAFLD?
- Endometrial cancer?

Case Presentation #2

CPE in PCOS - What should we screen for?

- HTN – every visit
- Lipid panel - at baseline, repeat based on HLD and CV risk
- Dysglycemia - Hgb A1c q1-3 years
- Obstructive sleep apnea – screen: daytime sleepiness, snoring
- Depression – PHQ2
- ~~NAFLD~~
- ~~Endometrial cancer~~

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■ ~~NAFLD~~

■ ~~Endometrial cancer~~

Our patient:

- No snoring or daytime sleepiness
- No decreased pleasure, feeling down
- → order labs (Lipids, A1c), send COC, schedule f/u in 6 months

PCOS Cheat Sheet

- Workup (after history and exam):
 - Evaluate for biochemical markers: total testosterone level, FSH
 - Exclude other conditions: beta HCG, TSH, PRL, serum 17 hydroxyprogesterone
 - Imaging: Transvaginal US
- Treatment:
 - All patients: Healthy eating, exercise, smoking cessation
 - Endometrial Regulation: COC,* Levonorgestrel IUD* > POP, MTF
 - Anti-Androgenic: COC* → Spironolactone
 - Metabolic Syndrome: Add MTF 1500
 - Desire Pregnancy: Add Clomiphene vs. Letrozole
- Health maintenance:
 - Screen: HTN, Lipids, A1c, OSA, depression

*Also provides endometrial protection

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