Too Many Pills! How to choose the right oral contraceptive

Laurie Turenne-Kolpan, MD, FAAFP
Jessica Montes, MD

1

Overview

- Components of Combined Oral Contraceptives (COCs)
- Risks to use of COCs
- Benefits of COCs
- Side Effects which are not dangerous, but annoying
- How to choose the right pill

2

3

The Estrogen

- Basically 1 kind of estrogen – Ethinyl Estrodiol. Difference is in the dosing
- Dosing is 10-50 mcg.
- 1 pill has Estradiol Valarate – prodrug that converts to estradiol. Thought to be more "bioidentical". No proof it is tolerated better.
- 1 pill has Estetrol (E4) – plant derived. Thought to be less selective at tissues like breast. No proof less harmful

4

The Progestins – 1st Generation

- Bind Estrogen, Progestin and Androgen receptors. Include norethindrone, norethindrone acetate, and ethynodiol diacetate
- Relatively low progestin activity and can lead to more breakthrough spotting if low dose

5

The Progestins – 2nd Generation

- These are testosterone-derived products and include norgestrel, levonorgestrel,
- They bind the androgen receptor and have some residual androgenic activity (hair growth, acne, lower HDL and alter glucose metabolism)
- Higher progestin activity – less breakthrough bleeding

6

The Progestins – 3rd Generation

- Still testosterone derivatives, but bind the androgen receptor weakly and are more progestin selective
- Include norgestimate and desogestrel

7

The Progestins – 4th Generation

- Drospirenone and dienogest actually have ANTI- androgenic effects
- Drospirenone – antimineralocorticoid effect. Has the same potassium sparing effects as 25mg of spirnolactone

8

Mechanism of Action

- Estrogen: Inhibits FSH and follicle formation
- Progesterone: Inhibits LH surge and ovulation, thickens cervical mucus, thin endometrial lining

9

Risks To Use Of COCs

- Thrombosis – including CAD, stroke and VTE.
  - Risk is mainly from the estrogen
  - This is overall a low risk population for CAD and stroke.
  - Greatest increase risk for stroke is in those with migraine with aura
  - Risk for VTE is higher in patients who are obese
  - RISK FOR ALL THROMBOTIC EVENTS IS HIGER IN WOMEN >35 WHO SMOKE!!

10

Risks - Hypertension

- COC do slightly increase blood pressure. Effect can be more pronounced in some (estrogen effect)
- Both ACOG and WHO agree COC may be used in patients with HTN who have well controlled BP, but are contraindicated in those with poor BP control

11

Risks - Lipids

- Estrogen increases triglycerides, increases HDL and lowers LDL
- Progestins (particularly the most androgenic 2nd generation-norgestrel and levonorgestrel) lower HDL and increase LDL
- 3rd and 4th generation progestins tend to increase HDL

12

Risks - Cancer

- Breast – appears to be a slight increase in risk. This risk wains with time off of OCP and by 10 years is the same risk as non-users
- Cervical – slight increased risk, however likely confounded by presence HPV. Unclear if OCPs allow HPV to infect cervix easier.

13

Risks - Hepatic

- Most risks have really only been shown with pills containing 50mcg or more of ethinyl estrodiol. Include hepatic adenoma (NOT carcinoma), cholelithiasis and cholecystitis

14

Drug Interactions

- Metabolism of COCs is accelerated by drugs that increase liver microsomal enzyme activity. These include phenobarbital, phenytoin, griseofulvin and rifampin
  - WHO recommends not using COCs in patients on anticonvulsants or rifampin. Interestingly griseofulvin seems to be ok.
  - Though some anticonvulsants do not reduce the effectiveness of COCs, there is some concern COCs may reduce the effectiveness of the anticonvulsant

15

Drug Interactions (cont)

- Antibiotics – Rifampin is the only one proven to decrease effectiveness. Anecdotal reports on tetracyclines, PCN and cephalosporins, but none proven
- St. John's wort may decrease COC effectiveness – Studies show it increases metabolism of COC's, leads to break through bleeding, follicle growth and ovulation

16

Contraindications

- Women > 35 who smoke (for WHO > 15 cigs per day is NO, <15 benefits may outweigh risks; ACOG – NO for any smokers
- Migraine with aura – increases risk of stroke
- ANY h/o thrombosis – CAD, stroke, VTE
- Active hepatic disease (no estrogen)
- History of breast CA or endometrial CA
- Undiagnosed vaginal bleeding

17

Contraindications (cont)

- Significant Hypertriglyceridemia (no estrogen)
- Poorly controlled HTN (no estrogen)
- Postpartum 1st 6 weeks (no estrogen)
- Breastfeeding – progesterone only prefered
- Patients on anticonvulsants or rifampin

18

Benefits - Cancer

- Significant decreased risk in ovarian cancer! 50% reduction after taking for 5 years. Protective effects last for at least 30 yrs after cessation of COC
- Decreased risk of Endometrial Cancer. Protective effects last for at least 15 yrs after discontinuation of COC
- Significant decreased risk of colon and rectal CA

19

Benefits - Other

- Decreased anemia, dysmennorhea, menorrghia
- Cycle control
- Estrogen withdrawal migraines improved with some regimens
- Acne and hirsutim improved with most pills
- Decreased PID
- Reductions in Cyclic Mastalgia
- Reduction in formation of ovarian cysts and pain from middleschmertz

20

Side Effects

- Initial common ones – bloating, breast tenderness, nausea and mood changes
  - Usually resolve within 3 cycles
- Breakthrough bleeding – MOST common side effect
- Amenorrhea – 5-10 percent of cycles are associated with amenorrhea

21

Side Effects Based on Hormone

- Estrogen – hypertriglyceridemia, hypertension, breast tenderness, nausea, migraine (esp. with withdrawal), headache, spotting with low dose, bloating, some mood change
- Progestin – headache, mood changes, spotting (b/c of thin endometrium), breast tenderness, low libido
- Androgen – hyperlipidemia, acne, hirsutism, weight gain

22

Breakthrough Bleeding

- Late cycle breakthrough bleeding is often caused by too little progestin
- Early breakthrough bleeding is often caused by too little estrogen
- Mid-cycle breakthrough may be a result of either hormone being too low

23

24

Case #1

- 20 yo with no significant PMHx wants start on OCPs. Her periods are not heavy or painful. She has no contraindications. BP 120/80, BMI is 28. She smokes ½ ppd. She is concerned about weight gain
- ANSWER: Any COC is fine. Can do low androgenic (3rd or 4th generation) to address weight concerns

25

Cases #2

- 16 yo who got her period 2 years ago has regular periods that are very painful, and she feels heavy. No clots. She has missed school 4 times now because of the pain. She does not smoke and no other contraindications. Her BP is 102/70 and BMI is 23.
- Answer: Any COC will significantly decrease blood flow and cramps. Consider higher progetin activity and even extended cycle

26

Cases #3

- 15 yo female with acne. Periods are regular and not bothersome. She notes her acne gets much worse with her cycles. She has tried benzaclin, tretinoin and does not want to take oral antibiotics.
- ANSWER: Use a low androgen (3rd generation) or anti-androgen (4th generation) pill. Yaz, Ortho-tricycline and Estrostep are FDA approved for this

27

Cases #4

- 19 yo female with migraine headaches that occur with the onset of menses. No aura. No other contraindications. BP110/67, BMI 25
- ANSWER: These are usually from estrogen withdrawal, so decreasing the withdrawal of estrogen using a multiphasic pill that has a low dose of estrogen in some or all of the period week, and extended cycle

28

Cases #5

- 23 yo on Junel 1/20 is having spotting in the second week of her cycle.
- Answer: likely estrogen is to low. Increase estrogen

29

Case #6

- 30 yo with cyclic mastalgia on Levora (EE 30 mcg/ levonogestrel 0.15mg). Non-smoker, no contraindications. Drinks 3 large Wawa coffees daily. BP 133/75, BMI 30.
- Answer: 1. Lower caffeine intake! 2. Change to pill with lower progesterone effect, (1st generation) and can also lower estrogen

30

Case #7

- 35 yo who wants to resume contraception after her last child. Was on the pill in her 20's without issue. Had severe Pre-E with last pregnancy. No smoking. BMI 33. BP 155/89.
- Answer: Progesterone only pill if does not want another option like LARC.

31

Case #8

- 33 yo female with heavy periods who wants to start the pill. Non smoker, no contraidications. BP 130/80, BMI 42
- ANSWER: any OCP. Obesity does slightly decrease effectiveness of OCP from 2 pregnancies per 100 women per year to 3 per 100 women per year for BMI>35. Using extended cycle might help efficacy.
- Slight increase in thrombosis in obese pts, but still much lower than pregnancy. Maybe consider non-estrogen alternative for >35 yo

32

Case #9

- 21 yo going on vacation and wants to avoid her menses. Already on OCP – wants to just skip the pill free days. Is this ok?
- ANSWER: Yes, for any pills, however spotting is likely with any non-monophasic pills.
- How long is it safe to go without getting a period?
- ANSWER: Forever

33

34