The NuvaRing

FLAME LECTURE: 149B

KIM/ROME 9.1.15

Learning Objectives

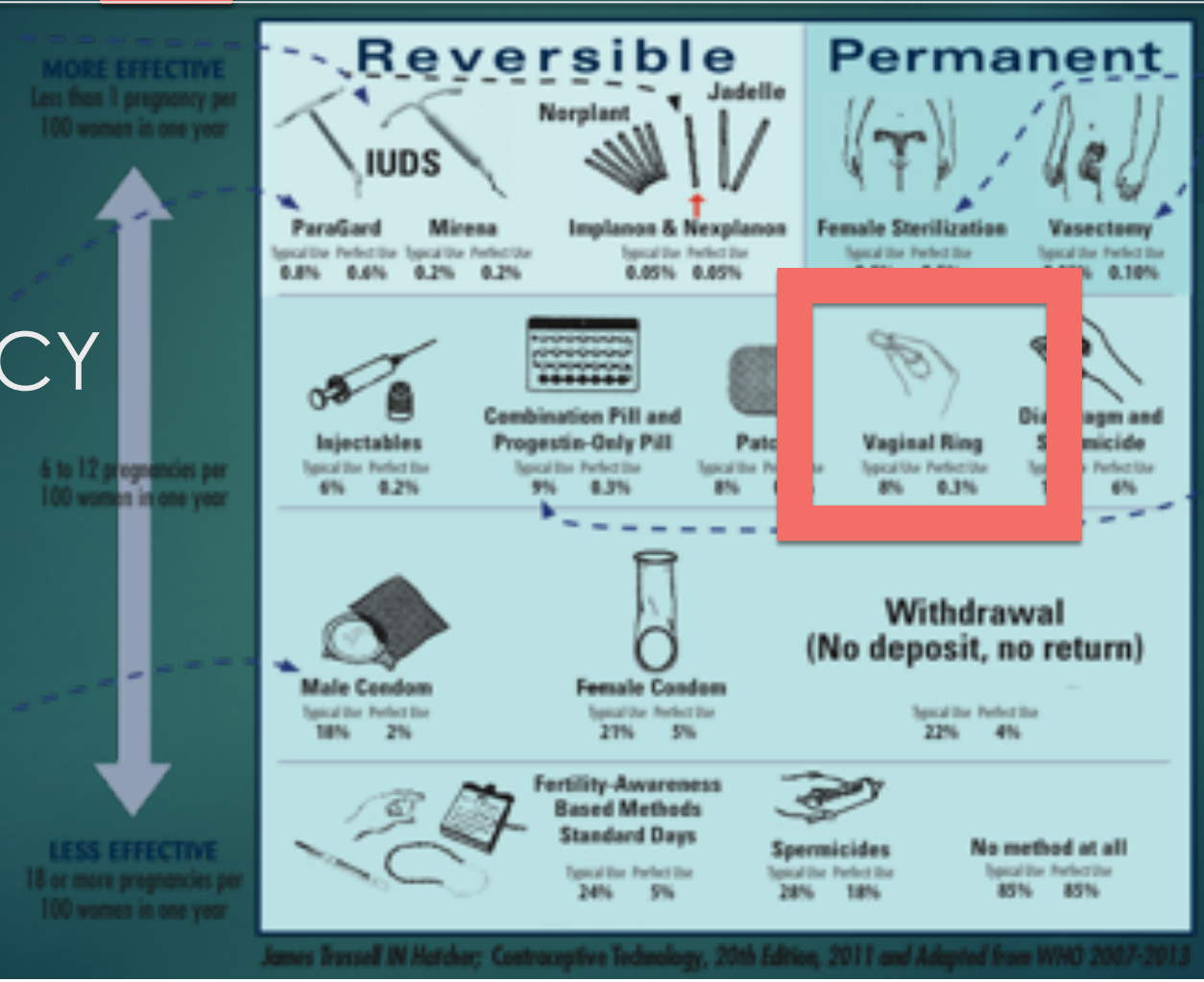
- Describe the mechanism of action and effectiveness of contraceptive methods
- Counsel the patient regarding the benefits, risks, and uses for each contraceptive method
- Describe barriers to effective contraceptive use and to the reduction of unintended pregnancy
- Prerequisites:
  - NONE
- See also – for closely related topics
  - FLAMEs on Barrier methods / CHCs – COCs / CHCs – Patch / Depo-provera / Mirena / ParaGard / Nexplanon
  - FLAME 213: Menstrual Cycle
  - FLAME 149A2: The Contraceptive Counseling Visit

OVERVIEW

- The NuvaRing is a type of CHC in that it contains both estrogen and a progestin
- Other combined hormonal contraceptives (CHCs) include
  - combined oral contraceptives (COCs)
  - combined hormonal patch

1. Magann EF. Obstet Gynecol. 2000

EFFICACY


MORE EFFECTIVE
Less than 1 pregnancy per 100 women in one year
6 to 12 pregnancies per 100 women in one year
LESS EFFECTIVE
18 or more pregnancies per 100 women in one year
Reversible
Permanent
IUDS
Norplant
Jadelle
ParaGard
Mirena
Implanon & Nexplanon
Female Sterilization
Vasectomy
0.8% 0.6% 0.2% 0.2%
0.05% 0.05%
0.10%
Injectables
6% 0.2%
Combination Pill and Progestin-Only Pill
9% 0.3%
Vaginal Ring
8% 0.3%
Male Condom
18% 2%
Female Condom
21% 5%
Withdrawal
(No deposit, no return)
22% 4%
Fertility-Awareness Based Methods
Standard Days
24% 5%
Spermicides
28% 18%
No method at all
85% 85%
James Trussell IN Hatcher: Contraceptive Technology, 20th Edition, 2011 and Adapted from WHO 2007-2013

Mechanisms of action of the NuvaRing

- Primary function: **INHIBITS OVULATION** (Estrogen-mediated)
  - Inhibits LH surge to prevent ovulation
  - Suppresses FSH to suppress ovarian folliculogenesis
  - **See FLAME 213: Menstrual cycle** for better understanding
- Secondary functions (all three are progesterone-mediated)
  - **Thins endometrial lining** to become unfavorable for implantation
  - Alterations in **cervical mucus** to become less permeable to penetration by sperm
  - Impairment of normal **tubal motility** and peristalsis

CONTRACEPTIVE RING: NuvaRing

- Latex-free ring measuring 5.4 cm diameter, 4 mm cross-section; available in 1 size
- Releases 15 mcg EE and 120mcg etonogestrel per day
  - Immediate peak in serum hormone concentration after insertion with slow decrease over cycle
- Typically placed inside the vagina and left in place for 3 weeks, then removed for 1 week to allow withdrawal bleeding
  - However, it may be left in place and changed once a month if menses not desired in that it actually functions for 35 days
- It DOES NOT need to be removed for intercourse but may be removed for up to 3 hours without affecting contraceptive efficacy

ADVANTAGES

- More private than other CHCs
- Has a lower dose of ethinyl estradiol than other CHCs
- Bypasses GI tract/first pass effect
- Easy to obtain, relatively inexpensive
- Can be used in the treatment of menstrual cycle disorders
  - Menorrhagia, dysmenorrhea, PMS and PMDD symptoms (not first-line)
- Can be used in the treatment of hyperandrogenism
  - Decreases acne and hirsutism
- Can be used in the treatment of gynecologic disorders
  - Can decrease AUB and pain from leiomyomas and endometriosis
- Cancer risk reduction
  - Decreased risk of endometrial, ovarian, colon cancers
  - Conflicting data on similar reduction in risk in BRCA ovarian cancer

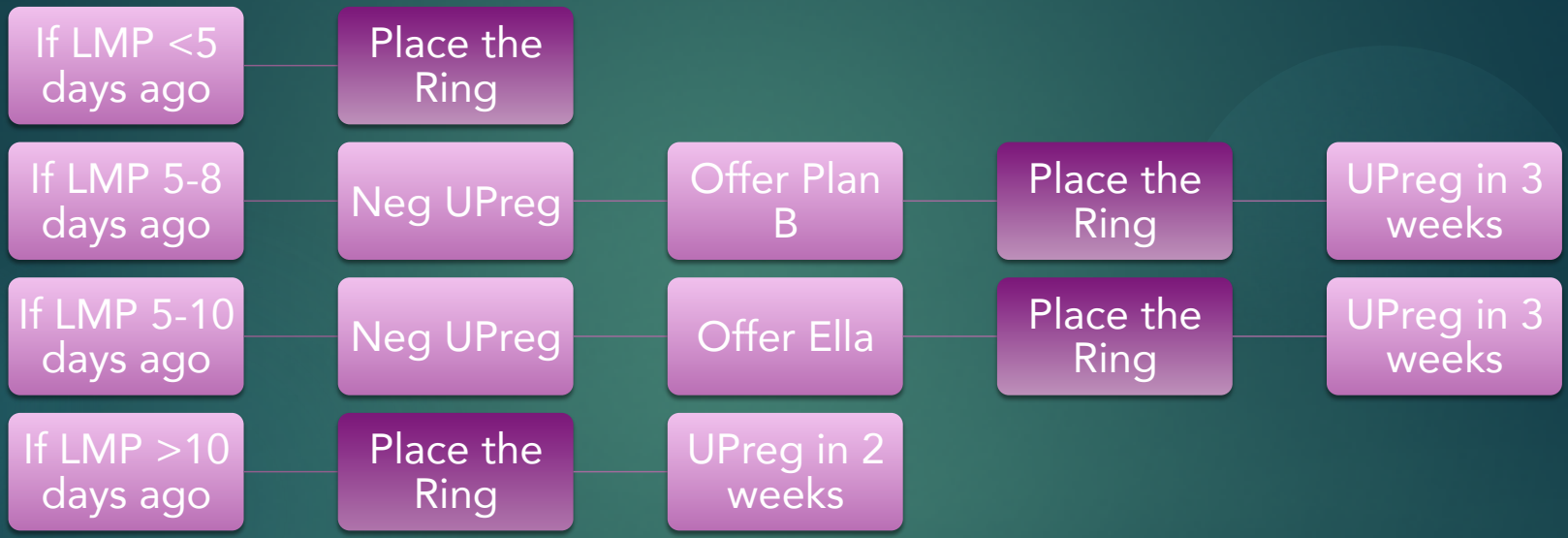
DISADVANTAGES

- Disadvantages over other CHCs
  - Increased rates of vaginitis, vaginal discharge, leucorrhea
  - Rare cases of Toxic-Shock Syndrome (TSS)
  - Patient must be comfortable inserting and removing ring from her vagina, discussing with partner
- Perfect use is harder to achieve than with LARCs
- It does not protect against STIs
- It can cause breakthrough bleeding from tissue breakdown of endometrium
  - More common in lower doses of estrogen because normally estrogen will stabilize endometrium
- Amenorrhea can occur with continuous and extended regimens, as well as standard preparations
- Some reports of decreased libido, however data is mixed
- Increased risks of HTN, VTE, and stroke (but significantly less risk than pregnancy-associated risks)
- Increased metabolic concerns
  - Estrogen: increases serum triglycerides, HDL, and lowers LDL
  - Progestin: increases LDL, lowers HDL (particularly androgenic progestins)
- Contrary to popular belief, there is NO evidence of significant weight gain with CHCs!

CONTRAINDICATIONS

- Smoking over the age of 35
- Diabetes > 20 years OR any complications (nephropathy, neuropathy, retinopathy, etc)
- HTN
- Hx of VTE/Stroke, or any known thrombogenic mutations (including SLE with APAs)
- Hx of ischemic heart disease or complicated valvular heart disease (pulmonary HTN, risk for A fib, history of subacute bacterial endocarditis) or multiple risk factors or history of peripartum cardiomyopathy.
- Hx of migraines: new onset with OCP, > 35 years of age, OR migraines + aura at any age
- Hx of Breast Cancer
- Liver disease: acute viral hepatitis, severe cirrhosis, Hepatocellular adenoma, or malignant hepatoma, gallbladder disease (if still has gallbladder), COC-related cholestasis
- Postpartum < 21 days (42 days if other VTE risk factors)

QUICK START METHOD (not currently using any method)



- Unlike the IUDs, it is OK to start this method even if there is a chance of pregnancy, because it is not teratogenic. If the Upreg turns positive, then stop using and make an appointment with your OB to discuss pregnancy options

COUNSELING

- 50% of pregnancies in the US are unplanned, and ~50% of these are terminated
- Most women with unintended pregnancies report using some form of contraception
- Reasons for nonuse of contraception include:
  - Thinking they could not get pregnant at that time (33%)
  - Not minding if they got pregnant (30%)
  - Partner did not want to use contraception (22%)
  - Side effects (16%)
  - Access problems (10%)
- No one method is perfect, but factors to consider include efficacy, convenience, duration of action, reversibility and return to fertility, effect on uterine bleeding, cost, accessibility, and medical contraindications
- Clarify needs, concerns, expectations: preferences, childbearing plans, pattern of sexual activity, social/cultural factors, ability to use method successfully, cost, ease of repeat administration, attitudes about unintended pregnancy
- **67%** of couples using CHCs continue to use that method for one year

FERTILITY after CHC discontinuation

- Commonly, menses will return within 30 days after stopping CHCs
- Menses and full fertility should return to normal in almost all women within 90 days
- If women do not menstruate 3 months after stopping this method, they should undergo the same workup for amenorrhea as any woman with amenorrhea

IMPORTANT LINKS

- PRACTICE BULLETIN 73 - Use of hormonal contraception in women with coexisting medical conditions
- PRACTICE BULLETIN 110 - Noncontraceptive uses of hormonal contraceptives
- CDC US Medical Eligibility Criteria for Contraceptive Use: Summary Chart
- US Selected Practice Recommendations for Contraceptive Use, 2013

OTHER REFERENCES

1. UpToDate "Overview of the use of estrogen-progestin contraceptives" Sept 2015
2. UpToDate "Risks and side effects associated with estrogen-progestin contraceptives" Sept 2015
3. UpToDate "Contraceptive vaginal ring" Sept 2015
4. UpToDate "Transdermal contraceptive patch" Sept 2015
5. UpToDate "Counseling women considering combined hormonal contraception" Sept 2015
6. UpToDate "Overview of contraception" Sept 2015