Pills, Patches, & Prophylactics: Contraceptive Update 2019
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Objectives
• Identify appropriate birth control methods for patients using United States Medical Eligibility Criteria for Contraceptive Use 2016 (US MEC 2016)
• Review updated guidelines from U.S. Selected Practice Recommendations for Contraceptive Use 2016 (U.S. SPR, 2016)
• Discuss management of common side effects of hormonal birth control options
• Explore new options of contraceptive management for patients

Disclosure
• I, Karen Turner, do not have a financial interest/arrangement or affiliation with one or more organizations that could be perceived as a real or apparent conflict of interest in the context of the subject of this presentation.
Healthy People 2020

• Improve pregnancy planning and spacing, and prevent unintended pregnancy.
  – Increase the proportion of pregnancies that are intended 51% to 56%
  – Reduce the proportion of females experiencing pregnancy despite use of a reversible contraceptive method
  – Reduce the proportion of pregnancies conceived within 18 months of a previous birth
  – Increase the proportion of sexually experienced persons who received reproductive health services
  – Increase the proportion of sexually active persons aged 15 to 19 years who use condoms to both prevent pregnancy and provide barrier protection against disease
Contraception

We prescribe it to our patients daily. Let us review some of the basics!

Essential Resources

- US Medical Eligibility Criteria (US MEC) for Contraceptive Use (2016)
- U.S. Selected Practice Recommendations (USSPR) for Contraceptive Use (2016)
  - https://www.cdc.gov/mmwr/volumes/65/rr/rr6504a1.htm
  - Update every 5 years
- CDC-INFO On Demand - Publications

Summary tables and charts

- MEC summary table in English, Spanish
- SPR quick reference charts
  - When to start contraceptive methods and routine follow up
  - What to do for late, missed or delayed combined hormonal contraception
  - Management of IUD when PID is found
  - Management of women with bleeding irregularities while using contraception

USMEC Rating System

1. No restrictions
2. Advantages generally outweigh theoretical or proven risks
3. Theoretical or proven risks usually outweigh the advantages
4. Unacceptable health risk (method not to be used)

Combined Hormonal Products

Mechanism of Action

- Pills (CHC)
- Patches (transdermal)
- Ring (vaginal)

Combined Hormonal Products

Mechanism of Action

- Progestins
  - Suppress release of GnRH from hypothalamus
  - Suppress surge of LH
  - Thickens cervical mucus
- Estrogen
  - Suppress release of FSH
Contraindications to Usage

<table>
<thead>
<tr>
<th>Medical Condition</th>
<th>USMEC Rating</th>
</tr>
</thead>
<tbody>
<tr>
<td>Breast CA</td>
<td>4 (3 within 5 years)</td>
</tr>
<tr>
<td>Breastfeeding (&lt;21 days)</td>
<td>4</td>
</tr>
<tr>
<td>CAD or cerebrovascular disease</td>
<td>3</td>
</tr>
<tr>
<td>Cirrhosis (severe)</td>
<td>4</td>
</tr>
<tr>
<td>Diabetes with vascular involvement</td>
<td>3/4 (retinopathy, nephropathy, etc.; &gt; 20 years duration)</td>
</tr>
<tr>
<td>H/A with focal neurological symptoms (aura)</td>
<td>4</td>
</tr>
<tr>
<td>Jaundice with prior pill use</td>
<td>3</td>
</tr>
<tr>
<td>Major surgery with prolonged immobilization</td>
<td>4</td>
</tr>
<tr>
<td>Moderate or severe impaired cardiac function</td>
<td>3/4</td>
</tr>
</tbody>
</table>

Medical Conditions

<table>
<thead>
<tr>
<th>Medical Condition</th>
<th>USMEC Rating</th>
</tr>
</thead>
<tbody>
<tr>
<td>Thrombogenic mutations</td>
<td>4</td>
</tr>
<tr>
<td>Past hx of DVT or thromboembolic disorder</td>
<td>3/4</td>
</tr>
<tr>
<td>Postpartum (&lt; 21 days)</td>
<td>4</td>
</tr>
<tr>
<td>Severe hypertension (&gt; 160/100)</td>
<td>4 (3; &gt;140/90)</td>
</tr>
<tr>
<td>SLE (+ antiphospholipid antibodies)</td>
<td>4</td>
</tr>
<tr>
<td>Smoking (≥ 35 yo; ≥ 15 cigs/day)</td>
<td>4</td>
</tr>
<tr>
<td>Valvular heart disease</td>
<td>4</td>
</tr>
<tr>
<td>Valvular heart disease with complications</td>
<td>4</td>
</tr>
</tbody>
</table>

Initiation of method

How to Be Reasonably Certain That a Woman is Not Pregnant

A health-care provider can be reasonably certain that a woman is not pregnant if she has no symptoms or signs of pregnancy and meets any one of the following criteria:

- Is ≤ 7 days after the start of normal menses
- Has not had sexual intercourse since the start of last normal menses
- Has been correctly and consistently using a reliable method of contraception
- Is ≤ 7 days after spontaneous or induced abortion
- Is within 4 weeks postpartum
- Is fully or nearly fully breastfeeding, exclusively breastfeeding or the vast majority (≥85%) of feeds are breastfeeds, amenorrheic, and ≤ 6 months postpartum

Negative predictive value 99-100%

When to Start Using Specific Contraceptive Methods

- Copper-containing IUD: Anytime, Not needed
- Ferritin-containing releasing IUD: Anytime, If ≥ 7 days after menses started, use back-up method or abortion for 7 days
- Implant: Anytime, If ≥ 7 days after menses started, use back-up method or abortion for 7 days
- Injectable: Anytime, If ≥ 7 days after menses started, use back-up method or abortion for 7 days
- Combined hormonal contraceptive: Anytime, If ≥ 7 days after menses started, use back-up method or abortion for 7 days
- Progestin-only pill: Anytime, If ≥ 7 days after menses started, use back-up method or abortion for 7 days

Examinations or non-medical before initiation:

- Pelvic examination and cervical smear
- Blood pressure measurement

CDC USPR, 2016
Choice of an initial oral contraceptive

- Regular light menses: 2-4 days flow; mild or no cramps
  - Start with low endometrial activity
- Regular moderate menses: 4-6 days of menses and moderate cramps
  - Start with moderate endometrial activity
- Regular heavy menses: 6+ days flow, severe cramps
  - Start with highest endometrial activity
- Irreg menses & infrequent menses (acne, oily skin, hirsutism)
  - Probably PCOS: start with high progestational and low androgenic activity.
- Irreg menses without androgen effects (hypomenorrhea)
  - Start with low estrogenic, low progestational activity combo
  - Start with low estrogenic activity

Dickey, R. 2014; Table 8, pp. 159-160

Choice of an initial oral contraceptive

- Nonsmokers 35 years and older
  - Start with sub 35 mcg estrogen, intermediate/high progestin
- Weight < 110 lbs
  - Start with lower estrogen & low progestin
- Weight > 160 lbs
  - Start with high estrogen and intermediate to high progestin
- Progesterone hypersensitivity: hx depression, hx preeclampsia, fam hx ↑ B/P
  - Start with low progestin dose and progestational activity
- Estrogen hypersensitivity: heavy menses, excessive N/edema/hypertension in pregnancy
  - Start with low estrogenic

Dickey, R. 2014; Table 8, pp. 159-160

Managing side effects of CHC

- 1st step: Do symptoms indicate presence or potential of serious illness?
  - Yes- STOP or EVALUATE
- 2nd step: Identify probable cause of side effect
- 3rd step: Make a decision about the probable clinical course of the side effect if CHC are to be continued.
  - BTB generally disappears by 3rd pill pack
- 4th step: Switch patient to CHC or other hormonal contraceptive that has a greater or lesser activity of the hormone that is causing the side effect

Dickey, R. 2014; pp. 31-33

SERIOUS

Stop CHC immediately

<table>
<thead>
<tr>
<th>SYMPTOM</th>
<th>POSSIBLE CAUSE</th>
</tr>
</thead>
<tbody>
<tr>
<td>Loss of vision, proptosis, diplopia, papilledema</td>
<td>Retinal artery thrombosis</td>
</tr>
<tr>
<td>Unilateral numbness, weakness or tingling</td>
<td>Hemorraghic or thrombotic stroke</td>
</tr>
<tr>
<td>Severe pains in chest, left arm or neck</td>
<td>Myocardial infarction</td>
</tr>
<tr>
<td>Hemoptysis</td>
<td>Pulmonary embolism</td>
</tr>
<tr>
<td>Severe pains, tenderness or swelling, warm or palpable cord in legs</td>
<td>Thrombophlebitis</td>
</tr>
<tr>
<td>Starting of speech</td>
<td>Hemorrhagic or thrombotic stroke</td>
</tr>
<tr>
<td>Hepatic mass or tenderness</td>
<td>Liver neoplasm</td>
</tr>
</tbody>
</table>

Dickey, R. 2014; Table 12, p. 167

Table recreated without permission

WARNING SIGNS

- A – Abdominal pain
- C – Chest pain
- H – Headache
- E – Eye problems
- S – Severe leg pain

NEED TO REVIEW WITH EVERY PRESCRIPTION OF CHC’S

Hatcher et al., 2012; Table 11-5, p. 276

POTENTIALLY SERIOUS

May continue CHC till patient evaluated

<table>
<thead>
<tr>
<th>SYMPTOM</th>
<th>POTENTIAL CAUSE</th>
</tr>
</thead>
<tbody>
<tr>
<td>Absence of menses</td>
<td>Pregnancy</td>
</tr>
<tr>
<td>Spotting or breakthrough bleeding</td>
<td>Cervical endometrial or vaginal cancer</td>
</tr>
<tr>
<td>Breast mass, pain or swelling</td>
<td>Breast cancer</td>
</tr>
<tr>
<td>Right upper quadrant pain</td>
<td>Cholecystitis, cholelithiasis or liver neoplasm</td>
</tr>
<tr>
<td>Mid-epigastric pain</td>
<td>Thrombosis or abdominal artery/vein, MI, PE</td>
</tr>
<tr>
<td>Migraine (vascular or throbbing) headache</td>
<td>Vascular spasm which may precede thrombosis</td>
</tr>
<tr>
<td>Severe nonsascular headache</td>
<td>Hypertension, vascular spasm</td>
</tr>
<tr>
<td>Galactorrhea</td>
<td>Pituitary adenoma</td>
</tr>
<tr>
<td>Jaundice, pruritus</td>
<td>Cholestatic jaundice</td>
</tr>
<tr>
<td>Depression, sleepiness</td>
<td>B6 deficiency</td>
</tr>
<tr>
<td>Urine size increase</td>
<td>Leukemia, adenocarcinoma, pregnancy</td>
</tr>
</tbody>
</table>

Dickey, R. 2014; Table 12, p. 168

Table recreated without permission
Causes of side effects for CHC

<table>
<thead>
<tr>
<th>Cause</th>
<th>Estrogen Excess</th>
<th>Estrogen Deficiency</th>
<th>Progestin Excess</th>
<th>Progestin Deficiency</th>
</tr>
</thead>
<tbody>
<tr>
<td>Breast cystic changes</td>
<td>Absence of withdrawal bleed</td>
<td>Breast cystic changes</td>
<td>Progestin excess</td>
<td>Progestin deficiency</td>
</tr>
<tr>
<td>Cervical erythema</td>
<td>Bleeding/spotting During pill days 10-21</td>
<td>Flow length decrease</td>
<td>Cervicitis</td>
<td>Bleeding</td>
</tr>
<tr>
<td>Dysmenorrhea</td>
<td>Continuous bleeding/spotting</td>
<td>Menstrual cycle</td>
<td>Dysmenorrhea</td>
<td>Edema</td>
</tr>
<tr>
<td>Dyspareunia</td>
<td>Headache</td>
<td>Painful intercourse</td>
<td>Headache</td>
<td>Headache</td>
</tr>
<tr>
<td>Amenorrhea</td>
<td>Atrophic vaginitis</td>
<td>Depression</td>
<td>Leg cramps</td>
<td>Leg cramps</td>
</tr>
<tr>
<td>Urinary tract infection</td>
<td>Nephronaxas</td>
<td>Nephronaxas</td>
<td>Nephronaxas</td>
<td>Nephronaxas</td>
</tr>
<tr>
<td>Urinary bladder growth</td>
<td>Voiding disorder</td>
<td>Hypoglycemia</td>
<td>N/V</td>
<td>N/V</td>
</tr>
</tbody>
</table>

Dickey, R. 2014; Table 11, pp. 165-166

Most common reason women stop CHC

- **BLEEDING**
  - If bleeding begins during 1st 14 days
    - Switch to CHC with higher estrogen activity
  - If bleeding begins after day 14 of active OCs
    - Switch to CHC with higher progestational activity

  - Switching a patient to a CHC with higher androgenic activity will usually ↓ bleeding that begins at any time during menstrual cycle

Dickey, R. 2014, p. 199

Risk of VTE

- Greatest risk in first 3-12 months of use
- Increased with higher dose (> 35 mcg), smoking, obesity and age, genetic factors (Factor V Leiden mutation, protein C or protein S deficiency)

  - **WHY?**
    - Estrogen increases hepatic production of elements that promote clot formation by the extrinsic clotting system (Factor VII, Factor VIII & Factor X)
    - Estrogen decreases the production of elements that promote clot lysis (tissue plasminogen activator & antiplasmin)
    - CHC users develop ↑ resistance to anticoagulant effect of activated protein C (prothrombotic effect)

Hatcher et al., 2012, p.279

Where We Have Been

- Yasmin (24/4 formulation): 2001
- Seasonique/Seasonal: 2006
- Femcon: 2006 (chewable)
- Amethyst: low dose, continuous, non-cyclic combination (90mg levonorgestrel/20mcg EE): 2007
- Lo-Seasonique: 2008
- Lo Loestrin FE: 2010
- Natazia (quadriphasic)- also approved for HMB 2010
- Taytulla: 2016 (softgel-1mg Norethindrone Acetate & 20mcg EE)
Progesterone Only Products

- Depot medroxyprogesterone acetate (DMPA)
- Etonogestrel subdermal implant (Nexplanon)
- Progestin only (Minipills)

Progesterone Generations

- 1st generation: norethindrone, ethynodiol diacetate, norethindrone acetate & norgestrel
- 2nd generation: levonorgestrel
- 3rd generation: desogestrel, gestoden, norgestimate/norelgestromin & etonogestrel
- 4th generation: dienogest, drosperinone & segesterone

Initiation of method

How to Be Reasonably Certain That a Woman is Not Pregnant

- Is <7 days after the start of normal menses
- Has not had sexual intercourse since the start of last normal menses
- Has been correctly and consistently using a reliable method of contraception
- Is >7 days after spontaneous or induced abortion
- Is within 4 weeks postpartum
- Is fully or nearly fully breastfeeding (exclusively breastfeeding or the vast majority (~85%) of feeds are breastfeeds), amenorrheic, and <6 months postpartum

Contraindications to Usage
Medical Conditions | USMEC Rating
--- | ---
Anticonvulsant therapy | 3 (POP)
Breast CA | 4 (3 within 5 years)
Cirrhosis (severe) | 3
Diabetes with vascular involvement | 3 (retinopathy, nephropathy, etc.; > 20 years duration) (DMPA)

Hx of bariatric surgery (malabsorptive procedures) | 3 (POP’s only)
Ischemic heart disease | 2/3
Known or suspected pregnancy | “NA”
Liver cancer | 3
Multiple risk factors for atherosclerotic cardiovascular disease | 3 (DMPA)
Past hx of CVA | 3
Rheumatoid arthritis on immunosuppressive therapy | 3 (new start) (DMPA)
Severe hypertension (> 160/100) | 3
SLE (+ antiphospholipid antibodies) | 3
Unexplained vaginal bleeding | 3 (DMPA, implant)

Causes of Side Effects for Progesterone Only Methods

<table>
<thead>
<tr>
<th>Estrogen deficiency</th>
<th>Progestin excess</th>
</tr>
</thead>
<tbody>
<tr>
<td>Absence of withdrawal bleed</td>
<td>Amenorrhea</td>
</tr>
<tr>
<td>Bleeding/spotting</td>
<td>Flow length decrease</td>
</tr>
<tr>
<td>Continuous bleeding/spotting</td>
<td>Menstrual</td>
</tr>
<tr>
<td>Pain, decrease/hypomenorrhea, etc.</td>
<td>Appetite ↑</td>
</tr>
<tr>
<td>Pelvic relaxation symptoms</td>
<td>Urine ↓</td>
</tr>
<tr>
<td>Anorexia, fatigue</td>
<td>Hypoglycemia s/s</td>
</tr>
</tbody>
</table>

Side Effect of Progesterone Only Methods

- Most common side effect
  - Irregular, spontaneous bleeding
  - 30-40% will discontinue DMPA (1st year)
  - 8-25% will discontinue etonogestrel implant (1st year) (Dynamed Plus; retrieved 1/18/18)
- Evaluate for underlying cause
  - Cervical malignancy
  - Uterine fibroids
  - STI’s

Management of Irregular Bleeding

- Unscheduled spotting or light bleeding
  - Short term NSAIDS therapy (5-7 days)
- Heavy or prolonged bleeding
  - Short term NSAIDS therapy (5-7 days)
  - Short term hormone therapy (10-20 days): low-dose combined oral contraceptive or estrogen
- Amenorrhea
  - No treatment required (reassure considered normal)
  - Unable to tolerate any of above: change to another method
  - Extensive education prior to method start

Management of Weight Gain

- Discuss side effects thoroughly prior to start of method
- Progesterone appetite stimulant
- Review healthy options for food selection

LET’S TALK

Management of Injection Timing

- Early
  - May be given early when necessary
- Late
  - Repeat DMPA injections can be given up to 2 weeks late (15 weeks from last injection) without requiring additional contraceptive protection
  - If > 2 weeks late: can have injection if reasonably sure that she is not pregnant (slide 30)
  - Use additional contraception for next 7 days

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Last thoughts on DMPA

- The potential health risks associated with the bone effects of DMPA must be balanced against a woman's likelihood of pregnancy using other methods or no method, and the known negative health and social consequences associated with unintended pregnancy, particularly among adolescents.
- Concerns regarding the effect of DMPA on BMD and potential fracture risk should not prevent practitioners from prescribing DMPA or continuing use beyond 2 years.

Warning Signs

- **POP's**
  - A – Abdominal pain
  - D – Delayed period
  - R – Repeated, severe headaches
  - P – Pill taken too late (> 3 hours past normal time)

- **DMPA**
  - A – Abdominal pain
  - B – Heavy bleeding
  - D – Depression
  - P – Pus, prolonged pain, redness, itching or bleeding at injection site
  - R – Repeated, severe headaches

Initiation of method

- Long Acting Reversible Contraception (Intrauterine Contraception)
  - Copper IUD (Paragard/Cu T380A)
    - Duration: 10 years
  - Mirena (LNG-52 mg)
    - Duration: 5 years
  - Liletta (LNG-52 mg)
    - Duration: 5 years
  - Kyleena (LNG-19.5mg)
    - Duration: 5 years
  - Skyla (LNG-13.5mg)
    - Duration: 3 years

Need to review with every prescription of progesterone only products

How to Be Reasonably Certain That a Woman Is Not Pregnant

- A health-care provider can be reasonably certain that a woman is not pregnant if she has no symptoms or signs of pregnancy and meets any one of the following criteria:
  - Is <7 days after the start of normal menses
  - Has not had sexual intercourse since the start of last normal menses
  - Has been correctly and consistently using a reliable method of contraception
  - Is <7 days after spontaneous or induced abortion
  - Is within 4 weeks postpartum
  - Is fully or nearly fully breastfeeding (exclusively breastfeeding or the vast majority (≥85%) of feedings are breastfeeds), amenorrheic, and <6 months postpartum
Insertion Recommendations

- Misoprostol is not recommended for routine use before IUC insertion (CDC, USSPR updated 2/1/17)
  - Might be useful in select circumstances (failed prior insertion)
- Paracervical block with lidocaine might reduce patient pain during insertion
- Prophylactic antibiotics are generally not recommended for Cu-IUD or LNG-IUD insertion

Contraindications to Usage

<table>
<thead>
<tr>
<th>Medical Conditions</th>
<th>USMEC Rating</th>
</tr>
</thead>
<tbody>
<tr>
<td>Anatomical abnormalities (Distorted uterine cavity)</td>
<td>4 (Both)</td>
</tr>
<tr>
<td>Breast cancer (current)</td>
<td>4 (LNG-IUD)</td>
</tr>
<tr>
<td>Cervical cancer (awaiting treatment)</td>
<td>4 (Both: initiation), 2 (Both: existing)</td>
</tr>
<tr>
<td>Cirrhosis</td>
<td>3 (LNG)</td>
</tr>
<tr>
<td>Endometrial cancer</td>
<td>4 (Both: initiation), 2 (Both: existing)</td>
</tr>
<tr>
<td>Gestational trophoblastic disease (persistently elevated BHCG levels or malignant disease)</td>
<td>4 (Both: initiation), 2 (Both: existing)</td>
</tr>
</tbody>
</table>

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<thead>
<tr>
<th>Medical Conditions</th>
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</tr>
</thead>
<tbody>
<tr>
<td>Liver (hepatocellular adenoma &amp; malignant hepatoma)</td>
<td>3 (LNG)</td>
</tr>
<tr>
<td>PID</td>
<td>4 (Both: initiation), 2 (Both: existing)</td>
</tr>
<tr>
<td>Postabortion (postseptic AB)</td>
<td>4 (Both)</td>
</tr>
<tr>
<td>Postpartum sepsis</td>
<td>4 (Both)</td>
</tr>
<tr>
<td>Pregnancy</td>
<td>4 (Both)</td>
</tr>
<tr>
<td>STI (+GC/+CT or purulent cervicitis)</td>
<td>4 (Both)</td>
</tr>
<tr>
<td>Tuberculosis (pelvic)</td>
<td>4 (Both)</td>
</tr>
<tr>
<td>Unexplained vaginal bleeding</td>
<td>4 (Both: initiation, 2 existing)</td>
</tr>
</tbody>
</table>

Management of Side Effects for IUD

- Bleeding irregularities (Cu-IUD/LNG-IUD)
  - If clinically indicated: consider underlying gynecological problem
    - Displacement, STD, pregnancy, or polyp/fibroid
      - If detected: treat if not
    - Treat with NSAIDS 5-7 days
    - If bleeding persists and is unacceptable to patient
      - Counsel on alternative contraception method and offer
- Amenorrhea (LNG-IUD)
  - Doesn’t require treatment/Reassurance

- Pelvic Inflammatory Disease (PID)
  - Treat PID according to CDC guidelines
  - IUD does not need to be removed immediately
  - Reassess in 48-72 hours: no clinical improvement
    - Continue antibiotics & consider removal of IUD
  - If women wants to terminate IUD use
    - Remove after antibiotic start: avoid potential risk for bacterial spread resulting from removal
  - If IUD removed
    - ECP’s if appropriate
    - Counsel on alternative methods
Management of Side Effects for IUD

• Pregnancy
  – Evaluate for ectopic
  – Advise of increased risk for spontaneous abortion or preterm birth if IUD remains in uterus
• IUD strings visible or can be retrieved safely
  – Advise that IUD needs to be removed ASAP
  – If removed: pull on strings gently
  – Return to provider if any of the following
    • Heavy bleeding
    • Cramping, pain
    • Abnormal vaginal discharge
    • Fever
  – If chooses to have IUD remain in place
    • To provider for any of the above signs and symptoms

Emergency Contraception

• Ulipristal acetate 30 mg X one dose
  – Up to 120 hours after unprotected intercourse
• Levonorgestrel 1.5 mg (can split dose)
  – Up to 72 hours after unprotected intercourse
• Estrogen & progestin in 2 doses
  – 100 µg of EE and 0.50 mg of levonorgestrel (second dose is 12 hours later)
  – Up to 72 hours after unprotected intercourse
• IUD (Cu-IUD)
  – Insert within 5 days of unprotected intercourse
  – If day of ovulation can be estimated; can be inserted beyond 5 days as long as insertion doesn’t occur > 5 days after ovulation
  – No withdrawal bleed within 3 weeks of ECP: perform pregnancy test

Ulipristal acetate (UPA): Update

• Start or resume hormonal contraception no sooner than 5 days after use of UPA
  – Provide/prescribe contraceptive method as needed
  – Risk that the regular contraceptive method might decrease the effectiveness of UPA must be weighed against the risk of not starting a regular hormonal contraceptive method
  – Breastfeeding women should “pump & dump” X 24 hours after taking UPA

• Abstain from sexual intercourse or use barrier contraception for next 7 days after starting/resuming regular contraception or until next menses (whichever comes first)
• Any non-hormonal contraceptive method can be started immediately after the use of UPA
• Advise woman to have pregnancy test if she does not have a withdrawal bleed within 3 weeks

IUD Warning Signs

• P: Period late
• A: Abdominal pain
• I: Infection exposure
• N: Not feeling well (fever)
• S: Strings missing (expelled or migrated)

NEED TO REVIEW WITH EVERY IUD INSERTION
Natural Cycles App

- First mobile medical application (app) that can be used as a method of contraception to prevent pregnancy
- Contains an algorithm that calculates the days of the month a woman is likely to be fertile based on basal body temperature readings and menstrual cycle information
- Should abstain from sex or use protection (such as a condom) when they see “use protection” displayed on the app, which means they’re more likely to be fertile during those days.

Diaphragms

- Traditional (Ortho; now brand is Milex)
  - 7 size options (60mm-90mm)
  - Fitted by provider, need script
  - Must use spermicide
- Caya: became available 2014 in US
  - 1 size option (fits approximately 85% of US women)
  - There are sizing/practicing demos available for providers
  - Some pharmacies have Caya; can be obtained online

Condoms

- Female
  - FC2 (FDA approved): single-use internal condom
    - Nitrile
    - Available online, at some Planned Parenthood clinics and with a prescription
  - Venus Age Condom (FDA: no)
    - Natural rubber
    - EU approved 2015
  - Cupid Female Condom (FDA: no)
    - Natural rubber
    - EU approved 2010

- Male
  - Polyisoprene
    - Softer, more form fitting, stretchier
  - Polyurethane (clear microsheer)
  - Vegan condoms (made from rubber plant sap)
  - i.Con (not FDA approved: Fall 2019 UK)
    - Wearable ring that fits over condom (secures condom)
    - Tracks # of thrusts, velocity, # of position changes, skin temperature & calories burned
    - In testing for detection of STI’s

Sources:

So….

- What is going on in the world of research for new and exciting contraceptive options?
What is New?

• Vaginal ring for one year
• Annovera (segesterone & EE)
  • Approved 8/18
  • Available in late 2019 or early 2020
• Levonorgestrel 40µg/d intravaginal ring: one year duration
  • Phase 3: last update 7/17
• Combined pills
  • Estetrol 15 mg/3 mg drospirenone
  • Phase 3: study completed 11/18
  • Minipill
  • Drospirenone 4.0 mg (24/4 formulation)
  • Moved to Phase 3 (8/18)

In Clinical Trials

• IUS
  • Veracept (copper): smaller dose copper
    • Now in phase 3 (was phase 2): Update 2/19
  • IUB (intrauterine ball: copper): 5 years
    • Phase 1: Update 2015
  • Levoopt (LNG): 12 months
    • Phase 2: Update 2/19
  • Mirena (LNG): 10 years
    • Phase 3: Update 12/17
• IUS (copper and UPA)
  • Phase 2 (Update 3/18)

Clinical Trials (Male Methods)

• Transdermal Combination Gel: Nestorone®-Testosterone (NES/T) in Men
  • Daily application
  • Multiple trials
  • Phase 1—2b
• Dimethandrolone Undecanoate (DMAU)
  • Male injectable (IM or subq)
    • Phase 1 (estimate completion date 12/19)
• DMAU alone or with LNG
  • Oral
    • Phase 2 (estimate completion 6/20)
• 11-β Methyl Nortestosterone Dodecylcarbonate
  • Male oral
    • Phase 1 (estimated completion date 3/19)

On the Horizon

• RISUG®, which stands for Reversible Inhibition of Sperm Under Guidance, is a reversible form of male birth control. It prevents pregnancy by causing the sperm to break apart in the vas deferens.
On the Horizon

- Vasalgel: injected into lumen of vas deferens
- “Clean Sheets pill”: relaxing muscles in the vas deferens to prevent transport of sperm and ejaculation without affecting the male orgasm (would also potentially be effective in decreasing transmission of STIs)
- Eppin: protease inhibitor that would inhibit the progressive motility of sperm when binds to semenogelin in ejaculate

References

ACOG. (2017). Committee opinion; Depot medroxyprogesterone and bone effects, No. 602; 123.

Questions