SESSION H5

Long-Acting Reversible Contraception (LARC):
Postpartum Use of the Subdermal Contraceptive Implant

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Session Description:

The course will review the use of the etonorgestrel implant for postpartum contraception, focusing on use in the immediate postpartum period.

Learning Objectives:
Following my presentation, participants will be able to:
1. Describe potential benefits of contraception in the immediate postpartum period.
2. Describe evidence regarding use of the etonorgestrel contraceptive implant in postpartum women.
3. Discuss potential effects of the etonorgestrel implant on breastfeeding.
LONG-ACTING REVERSIBLE CONTRACEPTION (LARC): POSTPARTUM USE OF THE SUBDERMAL CONTRACEPTIVE IMPLANT

DISCLOSURES

- Official
  - Trainer for Nexplanon (Merck)

- Unofficial
  - Passionate about contraception
  - Passionate about breastfeeding

OBJECTIVES

- Review some basic information about lactogenesis
- Describe potential benefits of contraception in the immediate postpartum period
- Describe evidence regarding use of the etonogestrel contraceptive in the postpartum period
- Discuss potential effects of the etonogestrel implant on breastfeeding

BACKGROUND

- 50% of pregnancies are unplanned
  - Most of these are in developed countries
  - Occur despite advances in contraceptive option

- Family planning barriers
  - Difficulty accessing health services
  - Difficulty obtaining contraceptive method
  - Failure of the method
  - Lack of medical guidance for users

- Breastfeeding benefits
  - Health benefits
    - Uniquely suited to human infant’s nutritional needs
    - Immunological and anti-inflammatory properties protective against a host of illnesses and diseases
  - Psychosocial benefits
    - Bonding
    - May lower postpartum depression risk
  - Economic benefits
    - Mothers/families ($1,200-1,500/year)
    - Employers
    - Government and insurers
  - Environmental benefits
    - Natural/renewable
    - No packaging
    - No transportation costs
**BACKGROUND**

- Immediate postpartum period
- 4th trimester begins
- Breastfeeding initiated
  - Lactogenesis II
  - Galactopoiesis
- Family planning “window of opportunity”
  - Inpatient; have access
  - Motivated

**REVIEW OF SOME BREASTFEEDING BASICS**

**BACKGROUND**

**BREASTFEEDING BASICS**

### Stages of Lactation: Pregnancy/Delivery
- **Mammogenesis**
  - Mammary growth
  - Increased size/weight of breast
- Lactogenesis, stage I
  - Mid-pregnancy to day 2 postpartum
  - Initiation of milk synthesis
  - Differentiation from alveolar to secretory cells
  - Prolactin stimulates milk production in secretory cells

### Stages of Lactation: Postpartum
- **Lactogenesis, stage II**
  - Day 3-8
  - Triggered by rapid drop in maternal progesterone (and possibly estrogen) levels
  - Switch from endocrine to autocrine control (supply-demand)
  - Galactopoiesis
    - Day 9 to beginning of involution
    - Milk production via secretino
    - Involution
      - ~40 days after last breastfeeding
      - Decreased milk production and removal of milk-producing cells (death of secretory cells followed by replacement with adipocytes)

**BREASTFEEDING BASICS**

**BREASTFEEDING BASICS**

- Essential for lactogenesis, stage II
  - Drop in progesterone levels
  - Occurs with delivery of placenta
  - Reach follicular phase levels in 2-3 days
  - Release of prolactin from anterior pituitary
  - Removal of breast milk from the breast
  - Release of oxytocin from the posterior pituitary

**BREASTFEEDING BASICS**

- Drop in progesterone and elevated prolactin levels work synergistically with
  - Cortisol
  - Thyroid-stimulating hormone
  - Prolactin-inhibiting factor
  - Oxytocin
  - If interplay between these hormones is disturbed...
    - Delayed lactogenesis
    - Suppressed lactogenesis
    - Examples of conditions associated with delayed/impaired lactogenesis
      - Type I diabetes
      - Obesity
      - Polycystic ovary syndrome
      - Pelvic infection
      - Stress
      - Ovarian theca lutein cysts (associated with high testosterone levels)

**BREASTFEEDING BASICS**

**Figure 1. National Trends in Breastfeeding Rates**

Note: Data reflects all states and territories. Childhood is defined as 0-17 years old.
BREASTFEEDING BASICS

- Barriers to breastfeeding in the U.S.
  - Lack of knowledge
  - Social norms
  - Poor family and social support
  - Embarrassment
  - Lactation problems
  - Employment and child care
  - Barriers to health services

THE BOTTOM LINE

There are many factors at work that determine breastfeeding success.

POTENTIAL BENEFITS OF CONTRACEPTION IN THE IMMEDIATE POSTPARTUM PERIOD

- 10-40% of women do not return for postpartum care
- <50% of women desiring intrauterine devices for contraception receive them at their postpartum visit
- ~50% of women resume sexual activity prior to the postpartum visit
- >50% of the first menstruations after delivery are preceded by ovulation
- Benefit of providing long-acting contraception in the hospital
  - No chance of pregnancy
  - Motivation for contraception usually high
  - No return visit required

WHY CONSIDER CONTRACEPTION RIGHT AFTER DELIVERY?

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WHEN TO INSERT?

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EVIDENCE REGARDING USE OF THE ETONOGESTREL CONTRACEPTIVE IN THE POSTPARTUM PERIOD

- So many different recommendations...
  - After the 4th postpartum week?
  - Right after delivery?
  - After breastfeeding is stopped?
**WHERE DO THE RECOMMENDATIONS COME FROM?**

- Manufacturer
  - Clinical trials did not involve breastfeeding women prior to the 4th postpartum week
  - Longstanding thoughts about use of contraceptives in the postpartum period
- CDC Medical Eligibility Criteria
  - Category 2 = “a condition for which the advantages of using the method generally outweigh the theoretical or proven risks”
- Lactation consultants
  - Experience working with breastfeeding moms
  - Understanding of progesterone’s role in lactogenesis

**A BRIEF JOURNEY THROUGH THE EVIDENCE**

- Safety of etonogestrel implant in the immediate postpartum period (Brito, et al)
  - 40 healthy, exclusively breastfeeding women
  - Study done in Brazil
  - Randomized to either
    - Etonogestrel implant 24-48hr after delivery
    - DMPA at the 6th postpartum week
  - Followed up during 12th postpartum week
- Outcomes
  - Maternal parameters
    - Weight and waist circumference
    - Blood pressure
    - Fasting glucose
    - Cholesterol
    - C-reactive protein, IL-6, TNF-α
  - Maintenance of exclusive lactation up to the 12th postpartum week

**RESULTS**

- Decreases in maternal mean weight and waist circumference significantly greater in the etonogestrel group
- Metabolic parameters the same between groups except for HDL
- HDL lower in implant group
- Newborns of moms with implant had a trend toward more weight gain (not statistically significant)
- No significant difference in maintenance of breastfeeding at 12 weeks
  - 85% of etonogestrel group exclusively breastfeeding
  - 75% of DMPA group exclusively breastfeeding

**THE BOTTOM LINE**

- There are no large, randomized controlled trials looking at the ideal time to place the etonogestrel implant and breastfeeding effects of early placement
- There are some small studies evaluating
  - Maternal safety of etonogestrel placement within 48hr of delivery
  - Lactogenesis following etonogestrel placement in the first 3 days after delivery

**THE EVIDENCE**

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**CONCLUSION**

- Etonogestrel implant appears to be safe for mom
- No adverse effect on infant weight gain
- Greater reduction in weight, BMI, waist circumference in implant users (compared to DMPA users)
- No difference in exclusive breastfeeding rates at the 12 week follow up visit

<table>
<thead>
<tr>
<th></th>
<th>Exclusive breastfeeding at 6wk</th>
<th>Exclusive breastfeeding at 12wk</th>
</tr>
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<tbody>
<tr>
<td>Implant 24-48hr after delivery</td>
<td>95% (19/20)</td>
<td>85% (17/20)</td>
</tr>
<tr>
<td>DMPA 6wk after delivery</td>
<td>85% (17/20)</td>
<td>75% (15/20)</td>
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</tbody>
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THE EVIDENCE
- Lactogenesis after early postpartum use of the contraceptive implant (Gurthcheff, et al)
- 69 healthy pregnant moms
  - Expressed plan to breastfeed after delivery
  - Expressed desire for implant for contraception after delivery
- Took place at University of Utah Health Sciences Center
- Randomized to either
  - Etonogestrel implant placement 1-3 days after delivery
  - Etonogestrel implant placement 4-8 weeks after delivery

RESULTS
- Receiving the implant prior to discharge did not adversely affect a woman’s ability to breastfeed
- Overall times to lactogenesis II (in both groups) were longer than previously published data for women with uncomplicated deliveries
- Additionally...
  - 90% rate of conduction anesthesia
  - 30% cesarean delivery rate
  - 1/3 of women randomized to 4-8 wk postpartum placement never received their implant
  - 3% of women assigned to 1-3 day postpartum placement did not receive their implant
  - About ¾ of participants were multiparas
  - 67% of participants had prior breastfeeding experience

CONCLUSION
- Receiving the implant prior to discharge did not adversely affect a woman’s ability to breastfeed
- External validity/generalizability?
  - Study population may not be representative of U.S. population
  - Ethnically homogenous
  - High rates of intrapartum interventions
  - High numbers of multiparas
  - Most had prior breastfeeding experience
- Results cannot be extrapolated to women with
  - Premature birth
  - Significant pregnancy complications
  - Mothers whose infants have significant medical problems

THE CONCERNS
- Interfere with decrease in progesterone necessary for lactogenesis II
- Cause lactogenesis/breastfeeding failure
Evidence for or against etonogestrel use prior to 4 wk postpartum is not robust.

Reasonable evidence for safe use of the implant after 6 wk postpartum:
- Infant milk intake and growth comparable when compared to copper IUD users
- Incidence of full breastfeeding and breastfeeding continuation similar with and without hormone use

At what expense?
- Potential risks/benefits of early placement
- Potential risks/benefits of delayed placement

WHEN THERE IS A LACTATION PROBLEM
- Is the problem due to one factor?
- Likely multiple factors involved

THE BOTTOM LINE
- No single recommendation to fit every patient
- It all comes down to economics...

THE SCIENCE OF DECISION-MAKING
- Step 1: Provide information
- Step 2: Decision made based on individual valuation of risks and benefits

SOME CASES FOR CONSIDERATION
CASE 1

- 22yo G2P2002 delivered 1 day ago
- Single
- Desired postpartum sterilization—not performed
- Would you offer her a Nexplanon prior to discharge?
### CASE 1
- 22yo G2P2002 delivered 1 day ago
  - Single
  - Desired postpartum sterilization—not performed
  - 11 month old daughter
  - Both pregnancies were unplanned
  - Late and sporadic prenatal care
  - Interested in breastfeeding; formula-fed first infant
  - Would you offer her a Nexplanon prior to discharge?

### CASE 2
- 30yo G3P3003 delivered 1 day ago
  - Married
  - Desired postpartum tubal—not performed
  - Would you offer a Nexplanon prior to discharge?

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- 22yo G2P2002 delivered 1 day ago
  - Single
  - Desired postpartum sterilization—not performed
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### CASE 2
- 30yo G3P3003 delivered 1 day ago
  - Married
  - Desired postpartum tubal—not performed
  - Plans to breastfeed; breastfed last 2 infants exclusively
  - Would you offer a Nexplanon prior to discharge?
CASE 2

- 30yo G3P3003 delivered 1 day ago
  - Married
  - Desired postpartum tubal—not performed
  - Plans to breastfeed; breastfed last 2 infants exclusively
  - Moving in 2 weeks
  - Would you offer a Nexplanon prior to discharge?

CASE 2

- 30yo G3P3003 delivered 1 day ago
  - Married
  - Desired postpartum tubal—not performed
  - Plans to breastfeed; breastfed last 2 infant exclusively
  - Moving in 2 weeks
  - Has been unable to finish college degree due to repeated pregnancies
  - Would you offer a Nexplanon prior to discharge?

CASE 2

- 30yo G3P3003 delivered 1 day ago
  - Married
  - Desired postpartum tubal—not performed
  - Plans to breastfeed; breastfed last 2 infant exclusively
  - Moving in 2 weeks
  - Has been unable to finish college degree due to repeated pregnancies
  - What is the patient’s priority?
  - Would you offer a Nexplanon prior to discharge?

THE BOTTOM LINE

- Blanket recommendations are probably not appropriate
- More information would be useful
- In the end, it comes down to
  - Appropriate counseling with the available information
  - Understanding the patient’s priorities
  - Providing good education and logical recommendations without making our priority the patient’s priority
  - Other considerations (ie reimbursement/coverage)

QUESTIONS?