Postpartum Depression

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Objectives

- Describe the difference between baby blues and postpartum depression (PPD)
- Describe the prevalence of PPD
- Identify the risk factors for PPD
- Describe PPD treatments
- Understand risks and benefits of antidepressant use during breastfeeding
Case 1

You are on the inpatient OB service and are called to see a 32 yo G1P1 female 2 days postpartum after an uncomplicated SVD for emotional lability and tearfulness. She has no medical or psychiatric history. She used THC monthly prior to her menstrual period but denies use during pregnancy.
Maternal Blues - Prevalence

- The “baby blues” occur in 80% of mothers
- Occurs in the first week and resolves in 7 - 14 days
- Emotional lability
- Does not interfere functioning
- Due to rapid hormonal changes, sleep deprivation
- No treatment necessary
Case 2

Pt is a 29 yo female G2P2, 4 weeks postpartum who comes to your outpatient clinic reporting inability to rest, fear about her infant’s safety and a lack on interest in her usual activities. She has a history of postpartum depression but didn’t receive treatment after her first delivery. She reports her infant is “difficult”. On exam she is restless and tearful but denies delusions or odd behaviors.
Postpartum Depression: Prevalence

- Postpartum depression occurs in 10 - 13% of mothers
- ½ million woman in the US each year
- Over half of these women receive no treatment
- Occurs within the first 12 months postpartum (peaks between months 2 and 4)
SCREENING

Edinburgh Postnatal Depression Scale
- Most extensively studied scale
- 10-item scale
- Scored 0 – 3 for each item
- Cut off of 12 yields sensitivity of 86% and specificity of 78%
# EDINBURGH POSTNATAL DEPRESSION SCALE

1. I have been able to laugh and see the funny side of things:
   - As much as I always could: 0
   - Not quite so much now: 1
   - Definitely not so much now: 2
   - Not at all: 3

2. I have looked forward with enjoyment to things:
   - As much as I ever did: 0
   - Rather less than I used to: 1
   - Definitely less than I used to: 2
   - Hardly at all: 3

3. I have blamed myself unnecessarily when things went wrong:
   - Yes, most of the time: 3
   - Yes, some of the time: 2
   - Not very often: 1
   - No, never: 0

4. I have been anxious or worried for no good reason:
   - No, not at all: 0
   - Hardly ever: 1
   - Yes, sometimes: 2
   - Yes, very often: 3

EDINBURGH POSTNATAL DEPRESSION SCALE

5. I have been scared or panicky for no very good reason:
   - Yes, quite a lot: 3
   - Yes, sometimes: 2
   - No, not much: 1
   - No, not at all: 0

6. Things have been getting on top of me:
   - Yes, most of the time I haven’t been able to cope at all: 3
   - Yes, sometimes I haven’t been coping as well as usual: 2
   - No, most of the time I have coped quite well: 1
   - No, I have been coping as well as ever: 0

7. I have been so unhappy that I have had difficulty sleeping:
   - Yes, most of the time: 3
   - Yes, sometimes: 2
   - Not very often: 1
   - No, not at all: 0
EDINBURGH POSTNATAL DEPRESSION SCALE

8. I have felt sad or miserable:
   Yes, most of the time  3
   Yes, quite often       2
   Not very often         1
   No, not at all         0

9. I have been so unhappy that I have been crying:
   Yes, most of the time  3
   Yes, quite often       2
   Only occasionally       1
   No, never              0

10. The thought of harming myself has occurred to me:
    Yes, quite often       3
    Sometimes              3
    Hardly ever            2
    Never                  1
                            0
Description

- Sad mood, feelings of guilt, uncontrollable crying
- Loss of interest or pleasure
- **Excessive worry or anxiety** (ruminations common)
- Irritability or short temper
- Feeling overwhelmed, difficulty making decisions
- Hopelessness
- Sleep problems (often the woman cannot sleep or sleeps too much), fatigue
- Physical symptoms or complaints without apparent physical cause
- Discomfort around the baby or a lack of feeling toward the baby
- Loss of focus and concentration (may miss appointments, for example)
- Changes in appetite; significant weight loss or gain
- Suicidal thoughts or worrying about hurting the baby
Useful Questions Particular to PPD

Can you sleep when the baby is sleeping?

Does you ruminate about harm coming to the baby?

Do you imagine your baby’s injury or death?

Are you anxious or worried? Some women may have a primary anxiety disorder, while others may not recognize themselves as sad, only anxious.
Risk Factors

- 50% recurrence risk if h/o postpartum depression
- Depression or anxiety during pregnancy
- Personal or family history of depression/anxiety
- Social isolation or poor support
- History of premenstrual syndrome (PMS) or premenstrual dysphoric disorder (PMDD)
- Bipolar disorder
Contributing Factors

- Traumatic obstetric experiences
- Sleep deprivation
- Role change or conflict
- Life stressors
- Ambivalence about the pregnancy
- Marital problems
- Infant temperament
EVALUATION AND DIFFERENTIAL DIAGNOSIS

- Differentiate between “baby blues”, depression, psychosis
- Urgent psychiatric intervention and provision for patient’s safety if:
  - Patient has considered a plan to act on suicidal thoughts or has infanticidal thoughts
  - Major functional impairment
  - Signs/symptoms of mania or psychosis
- Reevaluate in two weeks if:
  - Very mildly depressed without functional impairment
  - Score between 5-9 on Edinburgh Scale
Etiology - Biology

- Rapid hormonal shifts
- No consistent evidence that estrogen or progesterone abnormalities are causative
- Some interest in neuroactive steroids such as allopregnanolone (lower in women with PPD)
- No consistent evidence that cortisol or prolactin levels are predictive
Bloch et al. 2000 Am J Psych

- Bar chart: Cornell Dysthymia Scale Score
  - Baseline
  - Early withdrawal
  - Follow-up
- Line graph: Cornell Dysthymia Scale Score over time
  - Baseline
  - Addback
  - Withdrawal
  - Early
  - Late
  - Follow-Up
A. Estrogen plasma concentration

- Pregnancy: Elevated
- Delivery: Normal
- Day 5 Postpartum: Acute drop of estrogen level after delivery

B. MAO-A levels in affect-modulating regions

- Days 1-2: Elevated
- Days 3-5: Normal
- Day 5 Postpartum: 43% elevated

C. Mood

- Days 1-2: Normal
- Days 3-5: Sad
- Day 5 Postpartum: Mood is lowest on day 5 postpartum

Sacher et al. 2010 Arch Gen Psych
Effects of Postpartum Depression

- Guilt
- Decreased self esteem
- Stigma
- Stressed relationships (separation, divorce)
- Paternal depression
- Negative effects on baby on older children
  - Poorer bonding, more likely to be insecurely attached
  - Less persistence in play with and less joy in reunion after separation from depressed mothers
  - ? Lower IQ
  - Increase in behavioral problems and psychiatric symptoms in older children
- Child abuse/neglect
- Substance abuse
- Suicide/infanticide
- Less likely to continue breastfeeding
Effects of Postpartum Depression

Infant Development

Cognitive development
- Poorer infant mental and motor development (controlled for maternal IQ)
- Poorer object permanence

Emotional Development
- Less interactive
- Poorer concentration
- Less sociable with strangers
- More negative responses (protest behavior, temper tantrums)
- Insecure attachment, primarily avoidance (as opposed to anxious)
- Mothers more likely to report behavioral difficulties
Effects of Postpartum Depression
Infant Development

Mediating mechanisms
- Exposure to depressive symptoms
- Environmental adversity resulting from depression
- Genetic factors
- Parenting difficulties associated with the occurrence of maternal depression
Effects of Postpartum Depression

Infant Development

The primary determinant of infant behavior of depressed mothers may be a particular form of maternal responsiveness

– Withdrawn
– Intrusive
Treatment

- Pharmacologic Interventions
- Non-pharmacologic Interventions
Pharmacologic Interventions

Antidepressants
- 5 studies show benefit of (SSRI, SNRI, DNRI)
- 4 open label, 1 RCT

Hormones
- Estrogen (sublingual or transdermal 17beta-estradiol)
  - 2 studies
  - 1 open label, 1 RCT

Phototherapy
- Case reports only
Pharmacologic Interventions

Omega-3 Fatty Acids
- 1 open label study
- 1 RCT

Electroconvulsive Therapy
- No studies
Decision to Nurse While Taking Medication

- Risk/benefit analysis
- Other factors re pro’s/con’s nursing
  - For mother
  - For infant

Reprotox.org
Antidepressants and Breastfeeding

- Diffuses into milk
- Ideal antidepressant in breastfeeding:
  - Highly protein bound, short-half life, a low M/P ratio, poor bioavailability (poor oral absorption)
- Data based on case reports/series
- Side effects are probably overestimated
- Most data is reassuring that they are low risk

Davanzo et al Breastfeeding Med 2011
**Antidepressants and Breastfeeding**

![Table 1: Summary of Basic Pharmacokinetic Parameters of Antidepressant Drugs During Breastfeeding](Table1.png)

- **SSRI**
  - Citalopram: 36 hours, 2-4 hours, 1.16-3, 80%, 80%
  - Escitalopram: 27-32 hours, 5 hours, 2.2, 56%, 80%
  - Fluoxetine: 2-3 days, 1.5-12 hours, 0.28-0.67, 94.5%, 100%
  - Fluvoxamine: 15.6 hours, 3-8 hours, 1.34, 80%, 53%
  - Paroxetine: 21 hours, 5-8 hours, 0.056-1.3, 95%, Complete
  - Sertraline: 26 hours, 7-8 hours, 0.89, 98%, Complete

- **NRI**
  - Ropiprodine: NR, NR, NR, NR, NR

- **SNRI**
  - Venlafaxine: 5 hours, 2.25 hours, 2.75, 27%, >90%
  - Duloxetine: 12 hours, 4 hours, 0.267-1.29, >70%

- **Tricyclic antidepressant**
  - Amitriptyline: 31-46 hours, 2-4 hours, 1, 94.8%, Complete
  - Nortriptyline: 16-90 hours, 7-8.5 hours, 0.87-3.71, 92%, 51%
  - Clomipramine: 19-37 hours, 7-8.5 hours, 0.84-1.62, 96%, Complete
  - Desipramine: 7-60 hours, 4-6 hours, 0.4-0.9, 82%, 90%
  - Imipramine: 8-16 hours, 1-2 hours, 0.5-1.5, 90%, 90%
  - Dothiepin: 14.4-23.4 hours, 3 hours, 0.3, 30%
  - Doxepine: 8-24 hours, 2 hours, 1.08-1.66, 80-85%, Complete
  - Protriptyline: NR, NR, NR, NR, NR
  - Trimipramine: NR, NR, NR, NR, NR

- **Tetracyclic antidepressant**
  - Amoxapine: 8 hours, 2 hours, 0.21, 15-25%, 18-54%
  - Maprotiline: 27-58 hours, 12 hours, 1.5, 88%, 100%
  - Mianserine: NR, NR, NR, NR, NR

- **MAOIs**
  - NR, NR, NR, NR, NR

- **Atypical**
  - Bupropion: 8-24 hours, 2 hours, 2.51-8.58, 75-88%, 85%
  - St. John’s wort: 26.5 hours, 9.9 hours, NR, NR, NR
  - Neftazodone: 1-4 hours, 1 hour, 0.1-0.27, >99%, 20%
  - Mirtazapine: 20-40 hours, 2 hours, 0.76, 85%, 50%
  - Quetiapine: 6 hours, 1.5 hours, 0.29, 83%, 100%
  - Trazodone: 4-9 hours, 1-2 hours, 0.142, 85-95%, 65%
  - Lithium: 17-24 hours, 2-4 hours, 0.24-0.66, Complete

*Not strictly an antidepressant drug. Half-life, adult half-life of the medication; MAOI, monoamine oxidase inhibitor; M/P, milk/plasma ratio; NR, not reviewed; NRI, norepinephrine reuptake inhibitor; PB, protein binding in maternal serum; SNRI, serotonin-norepinephrine reuptake inhibitor; SSRI, selective serotonin reuptake inhibitor; T_{max}, time to reach a peak concentration in maternal plasma.
Antidepressants and Breastfeeding

Table 1. Infant Doses and Plasma Concentrations of Newer Antidepressants after Excretion in Breast Milk

<table>
<thead>
<tr>
<th>Drug</th>
<th>Approximate Number of Mother/Infant Pairs Studied</th>
<th>Absolute Infant Dose (mg/d)</th>
<th>Relative Infant Dose (%)</th>
<th>Absolute Infant Plasma Concentrations (ng/ml)</th>
<th>Relative Infant Plasma Concentrations (%)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Selective serotonin reuptake inhibitors</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Citalopram</td>
<td>80\textsuperscript{12}</td>
<td>0.14</td>
<td>3-10</td>
<td>Negligible\textsuperscript{5}</td>
<td>Up to 10\textsuperscript{6}</td>
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<tr>
<td>Escitalopram</td>
<td>12</td>
<td>0.04</td>
<td>3-6</td>
<td>&lt;5</td>
<td>&lt;4</td>
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<tr>
<td>Fluoxetine</td>
<td>149</td>
<td>0.14</td>
<td>&lt;12</td>
<td>Up to 100\textsuperscript{8}</td>
<td>Up to 80\textsuperscript{8}</td>
</tr>
<tr>
<td>Fluvoxamine</td>
<td>12</td>
<td>0.12</td>
<td>&lt;2</td>
<td>Not detected\textsuperscript{9}</td>
<td>-</td>
</tr>
<tr>
<td>Paroxetine</td>
<td>119</td>
<td>0.03</td>
<td>0.5-3</td>
<td>Not detected\textsuperscript{9}</td>
<td>-</td>
</tr>
<tr>
<td>Sertraline</td>
<td>145</td>
<td>0.04</td>
<td>0.5-3</td>
<td>Not detected\textsuperscript{9}</td>
<td>-</td>
</tr>
<tr>
<td>Other antidepressants</td>
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<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Venlafaxine\textsuperscript{10}</td>
<td>23\textsuperscript{13}</td>
<td>0.50</td>
<td>6-9</td>
<td>Up to 40</td>
<td>Up to 30</td>
</tr>
<tr>
<td>Duloxetine</td>
<td>6\textsuperscript{14}</td>
<td>&lt;0.03</td>
<td>&lt;1</td>
<td>Not detected\textsuperscript{9}</td>
<td>-</td>
</tr>
<tr>
<td>Reboxetine</td>
<td>4</td>
<td>0.03</td>
<td>1-3</td>
<td>&lt;5</td>
<td>&lt;2</td>
</tr>
<tr>
<td>Bupropion\textsuperscript{11}</td>
<td>20\textsuperscript{15}</td>
<td>0.20</td>
<td>2</td>
<td>Not detected\textsuperscript{9}</td>
<td>-</td>
</tr>
<tr>
<td>Mirtazapine</td>
<td>11\textsuperscript{16}</td>
<td>0.04</td>
<td>0.5-3</td>
<td>0.2\textsuperscript{16}</td>
<td>&lt;1\textsuperscript{16}</td>
</tr>
</tbody>
</table>
Recommendations: Postpartum

- First line are sertraline and NTP
- Low risk with other antidepressants: it is reasonable to choose based on prior drug response
- Reassure mother it is o.k. to continue breastfeeding
- Monitor infants weight gain and sedation levels
Recommendations: Postpartum

- No routine milk or infant levels unless will be reassuring to mother or clinically indicated by infant symptoms
- No “pumping and dumping”, not found to significantly impact outcomes
- The benefit to mother and baby of breastfeeding generally outweigh risk of using antidepressants during breastfeeding
Non-pharmacologic Interventions

Psychotherapy
- IPT and CBT
- 10 studies, 5 RCT

Psychosocial Interventions
- Peer Support (esp. telephone based)
  - 4 studies, 1 pilot RCT
- Partner Support
  - 1 RCT
Non-pharmacologic Interventions

Psychosocial Interventions (cont’d)
- Nondirective counseling
- 3 RCT

Other
- Relaxation/massage therapy
- Infant sleep interventions
- Maternal exercise
What Should be Accomplished in The First Appointment

- Reassurance is critical
  - Explain the difference between ruminations and delusions
  - Normalize and validate, this is a silent disease that is not culturally sanctioned
  - Reassure that it is a very treatable illness (this is where you can explain that healthy mom = healthy baby)

- Increase care for mother
  - Encourage and normalize getting help with household chores or older children
  - Encourage her to spend a little time alone
What Should be Accomplished in The First Appointment

- Do not allow family to take over care of infant unless there is a safety issue as this can be counterproductive exacerbating feelings of failure and deprivation.
- Encourage flexibility (does she have to do all the feedings, what will she think of herself if she has a bad day), this addresses feelings of guilt.
- Allow ventilation of anger.
- Explain issues of bonding (it takes longer than you think).
- Remind her of the resilience of children.
Prevention

- Brief IPT was found to decrease PPD by 50% at 3 months postpartum (Zlotnick 2006)
- But overall, psychosocial interventions have not been found to be preventive although intensive, individual postpartum support by a health care professionals has the best data (Dennis, CL 2006)
- One small sertraline trial showed medication to be preventive
Discussion Points

- Describe the difference between baby blues and PPD
- Describe the prevalence of PPD
- Identify the risk factors for PPD
- Describe treatment alternatives for PPD
References


Postpartum Support International
www.postpartum.net