MC3 Perinatal

Psychopharmacology Reference Cards

MICHIGAN MEDICINE
UNIVERSITY OF MICHIGAN

DEPARTMENT OF PSYCHIATRY

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Antidepressants

Generic (Trade)	S: start dose(mg), T: target dose(mg/day)	Titration Schedule	N: Notes; S: side effects; R: risks	P: pregnancy data; L: lactation data
Fluoxetine (Prozac)	S: 10-20, T: 20-60	10mg q 2 weeks	N: long half-life—self tapering S: can be activating	P: safe, L: safe; likely greater amount in breast milk than other SSRIs (10%) although this does not correlate with harmful effects
Sertraline (Zoloft)	S: 25-50, T: 100-200	25-50mg q 2 weeks	S: can be activating or sedating, or cause emotional numbing; more GI effects than others	P: safe, L: safe; negligible amounts transmitted into breast milk (<1%) although this does not correlate with better outcomes
Escitalopram (Lexapro)	S: 2.5-5, T: 10-20	5-10mg q 2 weeks	N: quite well tolerated	P: safe, L: safe
Citalopram (Celexa)	S: 10, T: 20-60	10mg q 2 weeks	S: due to warnings about inc. Qtc, may consider getting EKG at doses above 40mg	P: safe, L: safe
Mirtazapine (Remeron)	S: 7.5, T: 15-45	7.5mg q 2 weeks	N: causes sedation and increased appetite—helpful for anxious/depressed patients with insomnia who are not eating, S: weight gain	P: safe, L: safe
Duloxetine (Cymbalta)	S: 30, T: 60-120	30mg q 2 weeks	N: helpful for chronic/neuropathic pain	P/L: safe; less data than SSRI's but no significant documented risks. Use second line
Venlafaxine (Effexor XR)	S: 75, T: 150-300	75mg q 2 weeks	N: avoid non XR formulation for ease of dosing S: may cause hypertension; can cause significant withdrawal symptoms when tapered-taper slowly	P/L: safe; less data than SSRIs, with no significant documented risks. Use second line.
Bupropion (Wellbutrin IR (immed. release), Wellbutrin XL, Zyban)	IR: S: 75 qAM, T:75 qAM and qnoon (for doses above this switch to XL) XL: S: 150, T: 150-450	150mg q 2 weeks	N: activating properties help with low energy/motivation/lack of focus. Can be used alone or to augment SSRI/SNRI S: can increase anxiety and lowers seizure threshold—therefore, may opt to start slowly with IR formulation then if well tolerated, switch to XL	P: Not to exceed 450 mg (seizure risk), greater concern for seizure in those with a history of seizure or those engaging in purging behaviors. Helpful for smoking cessation in pregnancy. May help ADHD and other addictive disorders, such as overeating in pregnancy. L: safe
Paroxetine (Paxil, Paxil CR)	S: 10, T: 20-40 CR: 25	10mg q 2 weeks CR: 12.5 mg q 2 weeks	S: can be sedating, cause withdrawal effects due to short half life, CR form less likely to cause withdrawal when tapered	P: Older data demonstrated potential 1.5-2.0 fold increase in risk of cardiovascular malformations, leading to a 2005 warning. Recent data show no consistent information to support teratogenic risks. L: safe

Antidepressants: General Safety and References

General safety data for pregnancy	Generally speaking, the literature shows that antidepressant use during pregnancy (as compared to untreated depression/anxiety during pregnancy), does not increase the risk of 1) congenital abnormalities, 2) preterm birth, or 3) babies being small for gestational age. Furthermore, there is no data to support that children exposed to antidepressants have increased rates of neurodevelopmental problems long term (including autism). There is some data that infants born to mothers taking antidepressants have higher rates of poor neonatal adaptation syndrome (babies being fussy/jittery soon after delivery); however, symptoms of this, if they occur at all, are generally mild and short-lived. Persistent pulmonary hypertension in newborns is sometimes listed as a potential side effect of in utero antidepressant exposure; however, the condition is very rare.
General safety data for breastfeeding	There is no evidence of short or long term risks to breastfed babies whose mothers are taking SSRIs or SNRIs.
Pregnancy Resources	REPROTOX® is an information system developed by the Reproductive Toxicology Center for its members. REPROTOX® contains summaries on the effects of medications, chemicals, infections, and physical agents on pregnancy, reproduction, and development. The REPROTOX® system was developed as an adjunct information source for clinicians, scientists, and government agencies. Visit reprotox.org for more information.
Lactation Resources	Hale's Medications & Mothers' Milk 2021: A Manual of Lactational Pharmacology – An Essential Reference Manual on the Transmission of Medicine into Breast Milk. 19th Edition by Dr. Thomas W. Hale PhD Springer Publishing Company. Drugs and Lactation Database (LactMed) [Internet]. Bethesda (MD): National Library of Medicine (US); 2006-. Available from: https://www.ncbi.nlm.nih.gov/books/NBK501922/
References	"Pharmacologic Treatment of Perinatal Depression. Mary C. Kimmel, MD, Elizabeth Cox, MD, Crystal Schiller, PhD, Edith Gettes, MD, Samantha Meltzer-Brody, MD, MPH. Obstet Gynecol Clin N Am 45, pages 419–440, published 2018. https://doi.org/10.1016/j.ogc.2018.04.007"

Mood Stabilizers

Generic (Trade)	S: start dose(mg), T: target dose(mg/day)	Titration Schedule	N: Notes; S: side effects; R: risks	P: pregnancy data; L: lactation data
Lithium (Eskalith, Lithobid)	S: 150-300, T: 900-1200, blood level 0.6-1.2 mEq/L (generally, although some assert that a higher target of 0.8 mEq/L should be aimed for in pregnancy due to increased stressors/risk of postpartum psychosis—see references)	150-300mg q 3-7 days	N: narrow therapeutic window S: thyroid malfunction, toxicity with NSAID's, GI upset	P: small increase cardiac malformations (1.15 % vs 1.9%), need to carefully monitor levels during pregnancy and delivery due to shifts in blood volume, L: high rate of excretion into breastmilk; breastfeeding not recommended or if mom wants to BF need to monitor carefully baby for tox effects (sedation, feeding problems, lethargy, seizures) and measure blood levels
Valproic acid (Depakote, Depakene) **DO NOT PRESCRIBE TO WOMEN OF CHILDBEARING AGE**	S: 250-500, T: 500-1000, blood level 50-120 mg/L	250-500mg q 3-4 days	S: weight gain, hair loss R: hepatitis, pancreatitis	P: risk of neural tube defects 10% esp in 1st trimester (as well as facial and cardiac abnormalities), IUGR, mental retardation, neonatal toxicity, not recommended L: theoretical risk infant hepatotoxicity /thromobocytopenia
Carbamazepine (Tegretol) **DO NOT PRESCRIBE IN PREGNANCY/BF MOTHERS**	S: 100mg, T: 300-1200	100mg q 5-7 days	S: glaucoma R: Stevens–Johnson syndrome, agranulocytosis,	P: risk of defects 6% (neural tube, craniofacial), risk fetal vitamin K deficiency/bleeding, IUGR, neonatal toxicity L: high levels in breastmilk-need to monitor baby's bloodwork
Lamotrigine (Lamictal)	S: 25, T: 200-400	25mg/day x 2wks, then 50mg/day x 2 weeks, then 100mg/day; may increase in 100mg increments q2 weeks after this	N: *regarded as first choice for mood stabilization, esp. for bipolar depression in pregnancy* R: Stevens–Johnson syndrome	P: no increased risk of malformation, some risk for neonatal toxicity (rare), L: generally safe; infant levels are 30% of mom's dose; theoretical risk of SJS but no cases reported. Baby should be monitored for apnea, rash, drowsiness or poor sucking in which case toxicity should be considered
Topiramate (Topamax)	S: 25-50, T: 50-400	25-50mg q 3-7 days	S: sedating R: increased ammonia, metabolic acidosis, glaucoma, kidney stones	P: some reports of increased risk of cleft palate, low birth weight; avoid L: small case series showed no adverse effects; avoid if possible
(Oxcarbamazepine (Trileptal)	S: 300, T: 300-2100	300mg q 3-7 days	R: Stevens–Johnson syndrome	P/L: data are limited but suggest similar risk to that of carbamazepine, so recommend avoiding in pregnancy and breastfeeding

Mood Stabilizers: General Safety and References

General safety data for pregnancy	Because medications in this class have more risk associated with them and less data than other medications, decisions about using them in pregnancy should be made as a team by the mother and the physician. Benefits and risks should be weighed and ultimately, if a patient has historically only done well on medications with higher risk of teratogenicity (ie Lithium), it may be reasonable to continue that medication.
General safety data for breastfeeding	This class of medications, with the exception of lamotrigine, carries significant risk when used in breastfeeding. Therefore, mothers should avoid breastfeeding while on them (again, with the exception of lamotrigine).
Pregnancy Resources	REPROTOX® is an information system developed by the Reproductive Toxicology Center for its members. REPROTOX® contains summaries on the effects of medications, chemicals, infections, and physical agents on pregnancy, reproduction, and development. The REPROTOX® system was developed as an adjunct information source for clinicians, scientists, and government agencies. Visit reprotox.org for more information.
Lactation Resources	Hale's Medications & Mothers' Milk 2021: A Manual of Lactational Pharmacology – An Essential Reference Manual on the Transmission of Medicine into Breast Milk. 19th Edition by Dr. Thomas W. Hale PhD Springer Publishing Company. Drugs and Lactation Database (LactMed) [Internet]. Bethesda (MD): National Library of Medicine (US); 2006-. Available from: https://www.ncbi.nlm.nih.gov/books/NBK501922/
References	Larsen ER & Saric K. Pregnancy and bipolar disorder: the risk of recurrence when discontinuing treatment with mood stabilizers: a systematic review. Acta Neuropsychiatr. 29(5): pages 259-266, published 2017. Poels, E. M. P., Bijma, H. H., Galbally, M., & Bergink, V. (2018). Lithium during pregnancy and after delivery: a review. *International Journal of Bipolar Disorders*, *6*(1). https://doi.org/10.1186/s40345-018-0135-7

Antipsychotics/Neuroleptics (1)

Generic (Trade)	S: start dose(mg), T: target dose(mg/day)	Titration Schedule	N: Notes; S: side effects; R: risks	P: pregnancy data; L: lactation data
Risperidone (Risperdal)	S: 0.5-1, T: 1-6	0.5-1mg q 3-5 days	S: ↑prolactin, ↑metabolic risk	P: may have slightly higher risk for cardiac malformations (see general safety data) L: second line--limited data and higher excretion compared to other antipsychotics
Aripiprazole (Abilify)	S: 1, T: 2-15	1-5mg q 3-5 days	S: akathisia, weight gain	P: safe L: limited date; but regarded as safe; may have variable effects on breast milk production
Ziprasidone (Geodon) **DO NOT USE**	S: 20 QD, T: 20 BID - 60 BID	20mg BID q 3-5 days	N: relatively weight neutral S: ↑Qtc	P: avoid—interfered with embryo development in experimental animals L: avoid—no controlled human data
Quetiapine (Seroquel)	S: 12.5-25, T: 12.5-300	12.5-50mg q 3-5 days	N: may use in small doses as PRN for anxiety (ie 12.5mg TID PRN), moderate doses for sleep aid (25-50mg), higher doses for mood stabilization (100-300mg), S: sedation, weight gain	P: safe L: safe; very good data
Olanzapine (Zyprexa)	S: 2.5, T: 2.5-10	2.5-5mg q 3-5 days	S: ↑metabolic risk, sedation	P: safe L: safe
Paliperidone (Invega)	S: 1, T: 3-9	1-2mg q 3-5 days	N: active metabolite of risperidone S: ↑prolactin	P: limited human studies-avoid if possible L: limited data-avoid if possible

Antipsychotics/Neuroleptics (2)

Generic (Trade)	S: start dose(mg), T: target dose(mg/day)	Titration Schedule	N: Notes; S: side effects; R: risks	P: pregnancy data; L: lactation data
Lurasidone (Latuda)	S: 20, T: 40-120	20mg q 3-5 days	N: must be taken with at least 350cal meal; S: some sedation	P: limited human studies-avoid if possible L: appears to have very low excretion into breastmilk but data are limited—avoid if possible
Brexpiprazole (Rexulti) **NEWER AGENT WITH VERY LIMITED DATA—AVOID**				
Cariprazine (Vraylar) **NEWER AGENT WITH VERY LIMITED DATA AND SOME CONCERING ANIMAL DATA—AVOID**				
General safety data for pregnancy	Antipsychotics have been shown to confer no increased risk of congenital malformations to babies exposed to them in utero, with the exception of risperidone, which seemed to confer some increased risk of overall and cardiac malformations. Less data is available on the effect of these medications on potential pregnancy complications.			
General safety data for breastfeeding	Data are generally reassuring. Due to inverse relationship between dopamine and prolactin, some of these medications may cause increased breast milk production/galactorrhea. Please also see references before including Reprotox, Hale's book, and LactMed			
References	(RR 1.26) (Huybrechts KF, Hernández-Díaz S, Patorno E, et al. Antipsychotic Use in Pregnancy and the Risk for Congenital Malformations. JAMA Psychiatry. 2016;73(9):938–946).			

Anxiolytics and Sleep Aids (1)

Generic (Trade)	S: start dose(mg), M: maximum dose(mg/day)	Frequency	N: Notes; S: side effects; R: risks	P: pregnancy data; L: lactation data
Alprazolam (Xanax) **DO NOT USE**	S: 0.25-0.5, M: 1 TID		N: prefer not to use this short acting medication due to increased risk of rebound anxiety and tolerance/addiction	P: avoid combining with antidepressants in first TM to prevent risk malformation (see references), and use low dose in late pregnancy or BF . (risk with high doses near time of delivery--floppy baby syndrome and infant sedation) L: ok in small doses, in high doses risk infant sedation
Lorazepam (Ativan)	S: 0.25-0.5, M: 1 TID	May take up to 3x/day; prefer standing dosing over PRN	N: Highly effective, especially upon initiation of SSRI for anxiety and for rumination	same as above
Clonazepam (Klonopin)	S: 0.25-0.5, M: 1 TID	May take up to 3x/day; prefer standing dosing over PRN	N: longer acting than Ativan-may provide better coverage for consistently highly anxious patients. Highly effective, especially upon initiation of SSRI, for anxiety and for rumination; S: may be more sedating than alprazolam and lorazepam	same as above
Zolpidem (Ambien)	S: 5, M: 10	bedtime	N: Patient may sleep walk Rapid onset of action	P: limited data, but so far no evidence for increased risk of malformation; L: limited data; consider alternatives
Gabapentin (Neurontin)	S: 100, M: 900 TID	May take up to 3x/day, PRN	N: good option for patient with history of substance abuse; S: few to no side effects	P: limited human data, some evidence of teratogenicity in animal models; L: limited data but reassuring so far

Anxiolytics and Sleep Aids (2)

Generic (Trade)	S: start dose(mg), M: max dose(mg)	Frequency	N: Notes; S: side effects; R: risks	P: pregnancy data; L: lactation data
Desyrel (Trazodone)	S: 25, M: 150-200	At bedtime PRN	S: few with exception of potential grogginess; no addictive potential	P: safe (similar profile to SSRI's); L: safe (similar profile to SSRI's)
Diphenhydramine (Benadryl) **Doxylamine (Unisom)**	S: 25, M: 50 S: 25, M: 25	At bedtime PRN	S: few with exception of potential grogginess; no addictive potential	P: safe; L: Can interfere with lactation, generally safe in occasional small doses
Melatonin	S: 1-3, M: 5	At bedtime (or a little before), PRN	S: few with exception of potential grogginess	P: limited data but reassuring so far L: limited data but reassuring so far
Quetiapine (Seroquel)	S: 12.5, M: 50 TID	May take up to 3x/day, PRN	N: good option for patient with history of substance abuse; S: sedation, weight gain	P/L: see slide on antipsychotics
General information	Anti-anxiety medication taken on an as needed basis can play an important role in perinatal psychiatry due to the severity of anxiety that can be experienced during the perinatal period. Because most all anxiolytic medications can have a side effect of sedation, counsel patients to take first doses when someone else is present, if possible. Patients should not sleep in bed with their baby when taking these medications. Let patients know that you plan to eventually taper off of this medication. Preferentially prescribe long-acting anxiolytics as standing dose (over as needed delivery). Sleeping medications can be quite useful in the perinatal period given the frequent complaint of insomnia. Many women are understandably worried about taking these medications for fear of not waking up when the baby wakes in the night. For this reason we reassure patients that we are starting at the lowest doses and suggest that they try these medications when someone else is present who could wake up with the baby if needed. Patients should not sleep in bed with their baby when taking these medications. Many of these medications are quite safe in breastfeeding, although any baby whose mother is taking an anxiolytic or sedating medications should be monitored for drowsiness. Additionally, counsel patients that medications with antihistamine properties (diphenhydramine, doxylamine, hydroxyzine) may decrease breast milk production. Also see Reprotox, Hale's book, LactMed.			
References	Grigoriadis, S., Graves, L., Peer, M., Mamisashvili, L., Dennis, C. L., Vigod, S. N., Steiner, M., Brown, C., Cheung, A., Dawson, H., Rector, N., Guenette, M., & Richter, M. (2019). Benzodiazepine Use During Pregnancy Alone or in Combination With an Antidepressant and Congenital Malformations. *The Journal of Clinical Psychiatry*, *80*(4). https://doi.org/10.4088/jcp.18r12412			

Stimulants for Management of ADHD

General safety data for pregnancy and breastfeeding	Risks involved in the use of stimulants for the treatment of ADHD in pregnancy include: • no significant concerns for teratogenicity • questionable risk of miscarriage • increased risk of prematurity • some increased risk of adverse placental outcomes (preeclampsia, abruption) • some increased risk of NICU admission and CNS disorders (seizure, NOS), etc • data are lacking on long term neurodevelopmental effects Risk involved in the use stimulants for the treatment of ADHD during lactation include: • excreted in small amounts in breastmilk • due to effects on dopamine, may cause decrease in breastmilk production • data are lacking on long term neurodevelopmental effects General considerations • Consider decreasing by small increments weekly when trying to taper down/off • Long acting formulations have less potential to be abused • Higher doses may increase risk for psychosis, especially with the amphetamine class • Let patients know that long acting formulations should not be crushed, cut or chewed The decision about whether to prescribe stimulants during the perinatal period should be made jointly with the patient after sharing information about the risks and benefits. For a good review article and demonstration of shared decision making, please reference this article: Baker, A. S., & Freeman, M. P. (2018). Management of Attention Deficit Hyperactivity Disorder During Pregnancy. *Obstetrics and Gynecology Clinics of North America*, *45*(3), 495–509. https://doi.org/10.1016/j.ogc.2018.04.010 You may also reference the section in the MC3 Perinatal Provider Toolkit entitled “Management of ADHD in the perinatal period.”

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The information on these cards is intended to offer general guidelines on psychotropic medications used to treat behavioral health conditions. It is not a substitute for specific professional medical advice.

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