ADHD: Pregnancy and Postpartum

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Objectives

- Understand importance of treatment of attention deficit hyperactivity disorder (ADHD) in perinatal period
- Discuss general risks of stimulant use during pregnancy and breastfeeding
- Create a risk/benefit analysis of stimulant use vs stopping it during pregnancy
- Describe the non-pharmacologic treatment options available for all patients with ADHD

Disclosures

- No conflicts of interest
- May be discussing off label use of some medications

Epidemiology

- 4.4% of US adults have ADHD
- Approximately 90% of adults who have childhood ADHD continue to have the disorder
  - ADHD that persists into adulthood for women has been shown to be associated with depression, anxiety, substance use, with occupational and social impairment
- Roughly 1 in 30 women has ADHD
- About 80 % are undiagnosed
- 2/3 of ADHD patients struggling with symptoms do not take medications
- Huge increase in prescriptions for stimulants since 2003 to 2015 with steep increase during COVID

(Kessler et al., 2006)
(Biederman, et al., 2010)

Course of ADHD Across Pregnancy

- No systematic studies examining the course of ADHD during pregnancy
- It is possible that the perinatal period has an impact on the course of ADHD as a result of hormonal changes or other factors
- It is possible that women experience greater distraction from other areas as they focus increasingly on a life transition to motherhood
- One study suggests that women with ADHD are more likely to suffer from significant PMDD symptoms, Post Partum Depression, and menopausal symptoms, but this study is preliminary

(Dorani et al., 2020)

Impact of Untreated ADHD

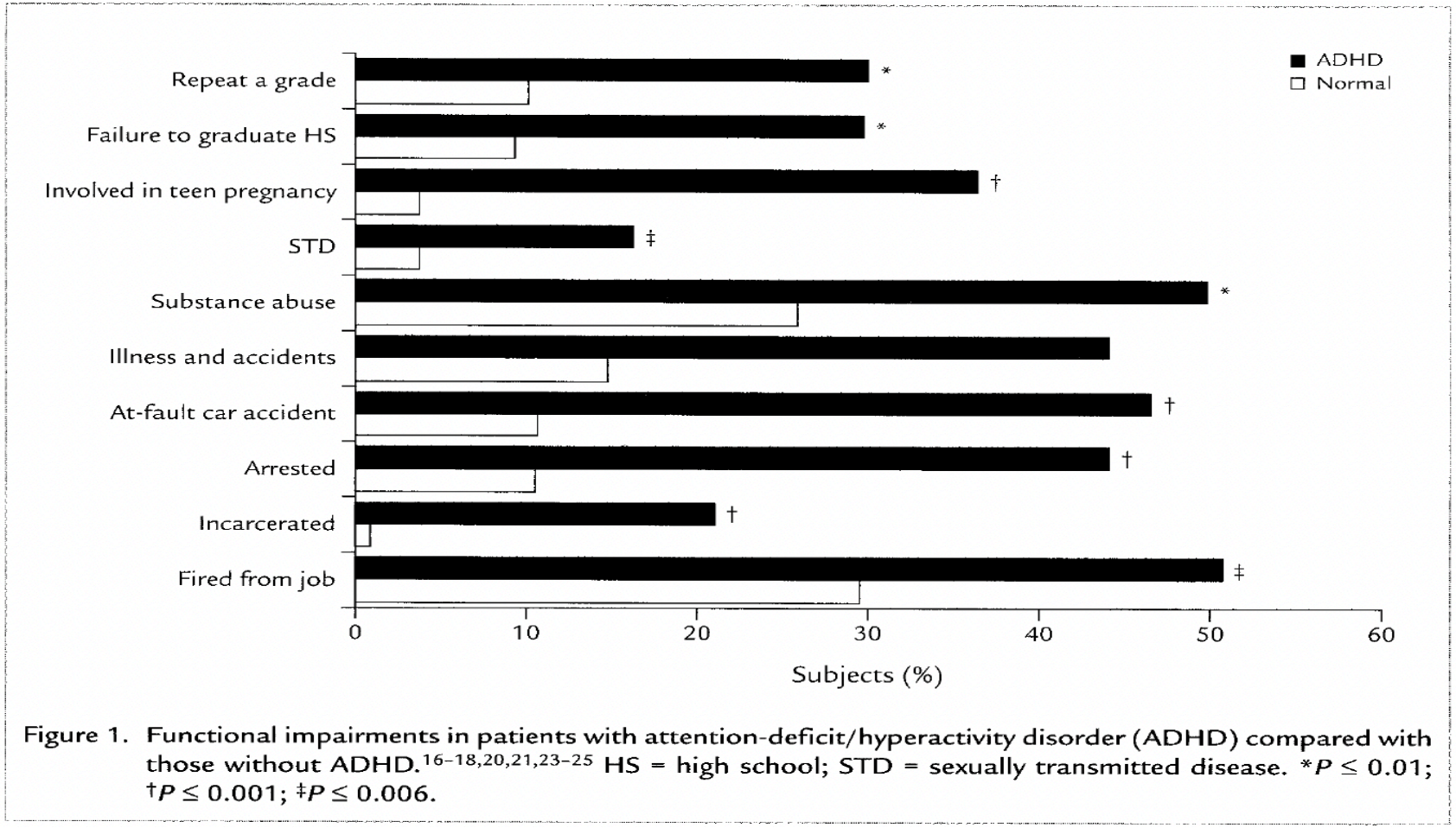

Figure 1. Functional impairments in patients with attention-deficit/hyperactivity disorder (ADHD) compared with those without ADHD.[16–18,20,21,23–25] HS = high school; STD = sexually transmitted disease. *$P \leq 0.01$; †$P \leq 0.001$; ‡$P \leq 0.006$.

(Steele et al., 2006)

Impact of Discontinuation of Stimulant Treatment During Pregnancy

- Although ADHD symptoms remain relatively stable across pregnancy
- But discontinuation causes clinically significant increase in depressed mood symptoms (despite being on antidepressant)
- Significant impairment in family functioning by experiencing conflict within the family
- Significant impairment in work functioning
- Risk for ADHD symptom severity and functional impairment is greater among women who change dose of stimulants compared to those who maintain treatment with these agents
- Risk of postpartum depression and anxiety increased in individuals with ADHD

(Baker et al., 2022)

(Andersson et al., 2023)

Benefits of Treatment

- Treatment of ADHD improves multiple areas: executive functioning, self regulation, problem solving-systematic review of 48 studies
- Powerful evidence- treatment of ADHD- significant impact on Quality of life and important outcome measures
- Prescription for ADHD meds like amphetamine and methylphenidate products are on rise, but evidence and consensus about the safety of ADHD medication use during pregnancy is lacking

(Coghill et al., 2017)
(Louik et al., 2015)
(Tamminga et al., 2016)

What ADHD Medications Can Do

- Reduction in symptoms of hyperactivity
- Reduction in symptoms of impulsivity
- Reduction in symptoms of inattention
- Reduction in distractibility

(Charernboon & Kosulwit, 2023)

What ADHD Medications Do NOT Do

- Leads to complete resolution of symptoms
- Leads to sustained improvements once medication is stopped
- Leads to improved social relationships
- Leads to large improvements in organizational skills or improve learning of new material
- Leads to large improvements in symptoms of depression, anxiety or substance abuse (though may help with some improvement if depression/anxiety is due to untreated ADHD)
- Don’t change brain development other than compensatory decrease in post synaptic dopamine receptors

(Faraone et al., 2021)

Non-pharmacological Treatment

- Psychoeducation
- ADHD coach- organization and time management skills
- Cognitive Behavior Therapy
- Dietary interventions
- Family therapy
- Environmental restructuring -accommodations at work or school, reduce workload

(Faraone et al., 2021)

Pharmacological Interventions in Pregnancy

- Stimulants
  - Methylphenidate
  - Amphetamines
  - Modafinil

- Non stimulants
  - Atomoxetine
  - Alpha 2 norepinephrine agonists- Clonidine and Guanfacine
  - Bupropion
  - Viloxazine

(Faraone et al., 2021)

Recent FDA Update (May 2023)

FDA Finally Adds "Addiction" To Black Box Warning On ADHD Drugs

Updated Boxed Warning

Table 1. Boxed Warning

Former*	New
~~POTENTIAL for~~ ABUSE ~~AND DEPENDENCE~~ ~~CNS stimulants, including~~ [DRUG-X]~~, other amphetamine-containing products, and methylphenidate,~~ have high potential for abuse ~~and dependence~~. Assess the risk of abuse prior to prescribing and monitor for signs of abuse and dependence while on therapy [see WARNING AND PRECAUTIONS (5.1) and DRUG ABUSE AND DEPENDENCE (9.2, 9.3)].	WARNING: ABUSE**, MISUSE, AND ADDICTION** DRUG-X has a high potential for abuse **and misuse,** which can lead to the development of a substance use disorder, including addiction. **Misuse and abuse of CNS stimulants, including DRUG-X, can result in overdose and death [see Overdosage (10)], and this risk is increased with higher doses or unapproved methods of administration, such as snorting or injection.** **Before prescribing DRUG-X,** assess each patient's risk for abuse**, misuse, and addiction. Educate patients and their families about these risks, proper storage of the drug, and proper disposal of any unused drug. Throughout DRUG-X treatment, reassess each patient's risk of abuse, misuse, and addiction and frequently monitor for signs and symptoms of abuse, misuse, and addiction [see Warnings and Precautions (5.1) and Drug Abuse and Dependence (9.2)].**

Updated Patient Counseling Information

Former*	**New** (added misuse and diversion information)
Advise the patient to read the FDA-approved patient labeling (Medication Guide). ~~**Controlled Substance Status/High Potential for Abuse and Dependence**~~ ~~Advise patients that [DRUG-X] are controlled substances, and they can be abused and lead to dependence.~~ Instruct patients that they should not give [DRUG-X] to anyone else. Advise patients to store [DRUG-X] in a safe place, preferably locked~~, to prevent abuse. Advise patients to comply with laws and regulations on drug disposal. Advise patients to dispose of remaining, unused, or expired [DRUG-X] by a medicine take-back program if available [see Boxed Warning, Warnings and Precautions (5.1), Drug Abuse and Dependence (9.1, 9.2, 9.3), How Supplied/Storage and Handling (16)].~~	Advise the patient to read the FDA-approved patient labeling (Medication Guide). Abuse**, Misuse, and Addiction** Educate patients and their families about the risks of abuse, misuse, and addiction **of DRUG-X, which can lead to overdose and death,** and proper disposal of any unused drug [see Warnings and Precautions (5.1), Drug Abuse and Dependence (9.2)**, and Overdosage (10)**]. Advise patients to store DRUG-X in a safe place, preferably locked, **and instruct patients to not give DRUG-X to anyone else**.

Slides courtesy-Dr. Goodman_NEI

FDA updating warnings to improve safe use of prescription stimulants used to treat ADHD and other conditions | FDA

Risk vs Risk Analysis

- The risks of medication exposure throughout the pregnancy and breastfeeding weighed against the risks of untreated ADHD, namely driving safety, and major impairment in fulfilling role at work and in family
- If treatment needed AMPH, MPH, bupropion would be better choices.
- Though Bupropion is the most studied agent for ADHD but not as efficient

Take Away Points

- Available data indicates none of the drugs for ADHD except guanfacine and viloxazine for which data is unavailable in humans is a major teratogen
- Practice drug holidays, or decrease the dosages where needed
- MPH- risk for cardiac malformation but Absolute Risk is small
- Amphetamines in pregnancy increase risk of preeclampsia but Absolute Risk is low
- There are indications that higher rates of miscarriage are associated with maternal ADHD rather than exposure to medications for ADHD in pregnancy
- Very few studies on for long term neurodevelopmental effects
- Decision should be made by weighing risk and benefits as sometimes risk associated with stopping the meds are more
- Risk/Risk: shared decision making

Resources

- Massachusetts General Hospital (www.womensmentalhealth.org)
- Postpartum Support International
- The Periscope Project (Perinatal Specialty Consult Psychiatry Extension)
- Mother to baby (www.mothertobaby.org)
- MCPAP for moms
- National Curriculum on Reproductive Psychiatry

Resources

- Drugs in Pregnancy and Lactation (Briggs, Freeman, Towers, Forinash)
- Postpartum Husbands and Dads (www.postpartumdads.org, www.postpartummen.com)
- Postpartum resources – information for patients and clinicians (www.mededppd.org)
- http://adhdmedicationguide.com/
- https://chadd.org/adhd-weekly/medication-chart-for-adhd-is-now-available/

References

- Andersson, A., Garcia-Argibay, M., Viktorin, A., Ghirardi, L., Butwicka, A., Skoglund, C., Bang Madsen, K., D'onofrio, B. M., Lichtenstein, P., Tuvblad, C., & Larsson, H. (2023). Depression and anxiety disorders during the postpartum period in women diagnosed with attention deficit hyperactivity disorder. Journal of affective disorders, 325, 817–823. https://doi.org/10.1016/j.jad.2023.01.069
- Baker, A. S., Wales, R., Noe, O., Gaccione, P., Freeman, M. P., & Cohen, L. S. (2022). The course of ADHD during Pregnancy. Journal of Attention Disorders, 26(2), 143-148.
- Biederman, J., Petty, C. R., Evans, M., Small, J., & Faraone, S. V. (2010). How persistent is ADHD? A controlled 10-year follow-up study of boys with ADHD. Psychiatry research, 177(3), 299-304.
- Charernboon, L., & Kosulwit, W. (2023). Pharmacological Treatments for Attention-Deficit Hyperactivity Disorder (ADHD) in Adults: A Systematic Review and Meta-analysis. Archives of Clinical Psychiatry, 50(1).
- Coghill, D. R., Banaschewski, T., Soutullo, C., Cottingham, M. G., & Zuddas, A. (2017). Systematic review of quality of life and functional outcomes in randomized placebo-controlled studies of medications for attention-deficit/hyperactivity disorder. European child & adolescent psychiatry, 26, 1283-1307.
- Dorani F, Bijlenga D, Beekman ATF, van Someren EJW, Kooij JJS. Prevelence of hormone-related mood disorder symptoms in women with ADHD. J Psychiatry Resources 2020

References

- Faraone, S. V., Banaschewski, T., Coghill, D., Zheng, Y., Biederman, J., Bellgrove, M. A., Newcorn, J. H., Gignac, M., Al Saud, N. M., Manor, I., Rohde, L. A., Yang, L., Cortese, S., Almagor, D., Stein, M. A., Albatti, T. H., Aljoudi, H. F., Alqahtani, M. M. J., Asherson, P., Atwoli, L., … Wang, Y. (2021). The World Federation of ADHD International Consensus Statement: 208 Evidence-based conclusions about the disorder. Neuroscience and biobehavioral reviews, 128, 789–818. https://doi-org.ezaccess.libraries.psu.edu/10.1016/j.neubiorev.2021.01.022
- FDA updating warnings to improve safe use of prescription stimulants used to treat ADHD and other conditions | FDA
- https://www.fda.gov/drugs/drug-safety-and-availability/fda-updating-warnings-improve-safe-use-prescription-stimulants-used-treat-adhd-and-other-conditions#:~:text=Sharing%20these%20medicines%20can%20lead%20to%20the%20development,addiction%2C%20which%20can%20lead%20to%20overdose%20and%20death.
- Kessler, R. C., Adler, L., Barkley, R., Biederman, J., Conners, C. K., Demler, O., et al. (2006). The prevalence and correlates of adult ADHD in the United States: Results from the National Comorbidity Survey Replication. American Journal of Psychiatry, 163, 716-723.
- Louik, C., Kerr, S., Kelley, K. E., & Mitchell, A. A. (2015). Increasing use of ADHD medications in pregnancy. Pharmacoepidemiology and drug safety, 24(2), 218.
- Steele, M., Jensen, P. S., & Quinn, D. M. (2006). Remission versus response as the goal of therapy in ADHD: a new standard for the field?. Clinical therapeutics, 28(11), 1892-1908.
- Tamminga, H. G., Reneman, L., Huizenga, H. M., & Geurts, H. M. (2016). Effects of methylphenidate on executive functioning in attention-deficit/hyperactivity disorder across the lifespan: a meta-regression analysis. Psychological medicine, 46(9), 1791–1807. https://doi-org.ezaccess.libraries.psu.edu/10.1017/S0033291716000350