



The Potential Impact of Cannabis During the Perinatal Period

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Presenter

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Abstract

As the recreational and medicinal use of cannabis increases worldwide, the questions about this herb's use during breast/chestfeeding rises exponentially. In the United States, sixteen states have legalized or are on the path to legalizing the consumption of cannabis. This trend has led to more lactation and healthcare professionals being faced with the question, "Is it safe for me to use cannabis during pregnancy and lactation?" The answers vary widely due to myth, bias, and poorly conducted and accessed research. These widely differing recommendations lead healthcare professionals to scratch their heads and face the knowledge that they don't know what to say to families. The problematic question of safety is compounded when issues involving equity and healthcare access come into play, as bias certainly plays a role in the US response to cannabis. Healthcare professionals have a sincere concern as the endocannabinoid system, which interacts with almost every organ system and the immune system, reacts to the molecules found in cannabis. The endocannabinoid system plays a role in brain development, system homeostasis, and the functioning immune system. What we actually know about how much perinatal use affects babies is still unknown. This presentation takes a harm reduction approach while looking at the most recent research and policies surrounding this controversial herb during the perinatal period.

Objectives

- Identify two cannabinoids in cannabis that are of potential concern during the perinatal period.
- Describe the endocannabinoid system.
- Describe why a harm reduction approach to cannabis use during perinatal period is more effective than risk reduction.



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Highlights

Cannabis is the most commonly used illicit substance among pregnant women in Western societies.

• Cannabis is the world's third most popular recreational drug, after alcohol and tobacco.

History of Cannabis

- Originated in China > India
- Medicinal use for over 5000 years
- Found in 2700 tomb in western China Gobi desert
- 1611 Hemp brought to North America as a crop
- 1840's Cannabis brought to colonies as a medicine
- Early 1900's decline as other medicines (opiates) became available
- Newspaper reports were filled with murders and psychotic behavior, mainly associated with communities of color
- 1937 US Federal Government - Marijuana Tax
- \$1 per oz medical use, \$100 per oz for rec use - Response to Mexican immigration and anti-blackness
- 1942 removed from Pharmacopia
- 1970 added to Schedule 1 -1970 Drug Wars under Nixon

Schedule 1 Substances

- Heroin
- LSD
- **Marijuana**
- Mescaline
- MDMA
- GHB
- Ecstasy
- Psilocybin
- Methaqualone
- Khat
- Bath Salts

Schedule 1 Challenges

- American Medical Institute
- Institute of Medicine
- DHHS wrote a patent on Cannabinoids – antioxidants and neuro-protectant
- FDA approved medicines made with THC and CBD
- NASEM recognizes medicinal effects

Antenatal and Postpartum use

- 3.9% of pregnant women used in past month and 7.0% used in past 2-12 months*
- Self reported use 5.7% in pregnancy and 5% during lactation**

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Why do parents use during perinatal period?

- Women with severe nausea during pregnancy (3.7%), were significantly more likely to use marijuana (Robertson, 2014)
- To treat “naturally” other ailments, such as migraines, chronic pain, etc.
- Ko (2018) found postpartum use is associated with depressive symptoms and shorter breastfeeding duration.

Perception of Little Harm

- 30% said no harm to fetus (Mark et al, 2017)
- Perceive no general or specific risk (Mark et al 2017; Jarlenski et al, 2017)
- Perceived as safer and less expensive as a coping mechanism (Bayrampour et al, 2018)

National Academy of Sciences, Engineering, Medicine

- There is conclusive or substantial evidence that cannabis or cannabinoids are effective:
 - For chronic pain in adults
 - Antiemetics in the treatment of chemotherapy-induced nausea and vomiting
 - Multiple sclerosis spasticity symptoms
- There is moderate evidence that cannabis or cannabinoids are effective for:
 - Improving short-term sleep outcomes
- There is limited evidence that cannabis or cannabinoids are effective for:
 - Increasing appetite and decreasing weight loss associated with HIV/AIDS
 - Symptoms of Tourette syndrome
 - Anxiety symptoms
 - PTSD
- Types of Cannabis
 - Sativa
 - Indica
- Types of Use
 - Smoking, Vaping, Tea, Edibles, Capsules, Suppositories

Do Not Confuse with Synthetic Cannabis

- K2 or Spice
- SynCanns
- Sprayed on dried plant for smoking or used as oil
- Symptoms-rapid heart rate, vomiting, violent behavior, suicidal thoughts, death

Pesticides

- Myclobutanil - “Bad Actor”
- Imidacloprid - “moderately hazardous”
- Abamectin and the avermectin chemical family - “Bad Actor”
- Etoxazole
- Spiromesifen

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Pesticides

- 2013 Journal of Toxicology report found 70% of pesticides used on cannabis can pass through body via inhalation
- Smoking can mean absorbing 10 times what you would through ingestion of pesticides
- Dabbing increases risk significantly

Cannabis Molecules

- THC
 - Psychoactive
 - Euphoria
 - Analgesic
 - Antibacterial
 - Antiemetic
 - Anti-tumoral
 - Bronchodilator
 - Appetite Stimulant
 - Neuroprotective (medium doses)
 - Sleep Inducing
 - Anticonvulsant
 - Muscle Relaxant
 - Immunomodulating
- CBD
 - Neuroprotection
 - Anticonvulsant
 - Analgesia
 - Sedation
 - Antiemetic
 - Antispasmodic
 - Antiinflammatory
 - Antianxiety

Endocannabinoid System

- CB1 – Nervous System, Connective Tissue, Glands, Gonads, Organs
- CB2 – Immune System and Associated Structures
- Endogenous Ligands - Anandamide (AEA) and 2-arachidonoyl glycerol (2-AG)
- Interacts with
 - Learning and memory
 - Anxiety
 - Depression
 - Addiction
 - Appetite
 - Neuro-protection

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Cannabis and the Brain

- Hippocampus/Hypothalamus
 - Hunger
 - Feelings of hunger
- Hippocampus
 - Short term memory
 - Lack of memory
- Cerebellum
 - Coordination
 - Lack of coordination
- Amygdala
 - Learn to fear
 - Become paranoid
- Limbic System
 - Dopamine
 - Feel pleasure

Preconception, fertility, pregnancy

- THC and Animal Studies
 - Disrupts EC signaling
 - Alters dopamine, serotonin, and opioid receptors
 - Disrupts synaptogenesis
- Fetal Brain Study
 - 42 postmortem fetal brain samples (from saline induced abortions)
 - Decrease in dopamine receptor (D2) mRNA expression in amygdala
 - Significant prevalence in males. Chronic use association with low mRNA levels
- Pre-term Labor
 - Meta-analysis – 31 studies – 78,000 women using marijuana and 124,000 non-users
 - When taking into account women who also smoked tobacco and those who did not the risk of pre-term delivery was eliminated
- A critical review by Torres et al., published on May 8, 2020, found the "totality of the evidence suggests prenatal cannabis exposure does not lead to cognitive impairments." They reviewed 40 studies that met their inclusion criteria and found that the cognitive performance of cannabis exposed children did not significantly differ from non-exposed children. One of the most interesting parts of the review to me was that the reviewers found "evidence for scores being below the normal range in only 0.3% of the total sample".

Human Milk and Cannabis

- Presence of THC in Human Milk: Letter to the Editor, NEMJ, 1982 -Perez-Reyes and Wall
 - Where does the 8:1 serum concentration myth come from???

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Baker and Hale Study

- Abstained 24 hours
- 0.1 g of containing 23.18% THC – with a new glass pipe Presidential Kush Sativa
- Smoked (3-4 hits over 10-20 minutes)
- Pumped at 20 minutes and 1, 2, and 4 hours
- Peaked at 1 hour, with a peak of 94 ng/mL (range 12.2–420.3 ng/mL), and receded slowly over the subsequent 4 hours.
- What we don't know
 - What is the plasma level in the breastfeeding infant?
 - What effect would repeated and continuous doses have on breast milk concentrations?
 - What do cannabis products do to the endocannabinoid system?
 - What is the lasting effect of exposing developing infants to cannabis?
- Pediatrics Bertrand et al.
 - 54 Samples - exposure in past 14 days
 - 88% daily use
 - 64% primarily inhaled
 - Lower detection rate >1 ng/ml (Baker/Hale > 5 ng/ml)
 - Date not based on dosing, but self reporting
 - 20/54 no THC
 - Median THC conc. = 9.47 ng/mL (range = 1.01 – 323)
 - 11-OH-THC (Psychoactive) was detected in 5 samples
 - CBD (Not psychoactive) was detected in 5 samples
 - RID 2.5 (1000 lower than adult dose)
- What do we know?
 - RID 2.5 (1000 lower than adult dose)
 - Oral Bio-availability is 1-5%, reported in Infant Risk as 4-12%
 - Peak levels seem to be 60-120 minutes post use
 - Half life of THC in milk is about 1 day
 - Metabolism can vary dramatically between daily and occasional users

Focus on Harm Reduction

- Acceptance that drug use is part of the world we live in: work to minimize the harmful effects
- Drug-use is complex and multi-dimensional
- Cessation of drug use is not necessarily criteria for successful intervention
- Services should be non-judgmental to help reduce harm
- Social inequalities affect people's ability to deal effectively with the harm
- Recognize the real harm associated with drug-use.

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Focus on Harm Reduction

- Non-judgmental, non-coercive care
- Avoid paternalism
- Intersectoral - other issues may be present

Organizational Statements

- ABM #9
 - Counsel those who admit use
 - Strongly advise those with positive urine screen
 - Avoid or reduce use
 - Advise on long-term neurobehavioral risks
 - Avoid direct exposure of smoke to infant
 - Take into careful consideration and counsel on the potential risks of exposure of marijuana and benefits of breastfeeding to the infant.
 - Careful consideration of the risks versus benefits of breastfeeding in the setting of moderate or chronic marijuana use
 - At this time, although the data are not strong enough to recommend not breastfeeding with any marijuana use, we urge caution.
- Hill/Reed
 - If a woman is going to smoke tobacco, she should be encouraged to continue breastfeeding. There is a lack of evidence to suggest that the recommendation to a mother who uses marijuana should be any different.
- AAP
 - AAP - Women who are pregnant or breastfeeding avoid marijuana use.
 - ACOG also recommends that obstetrician-gynecologists counsel women against using marijuana while trying to get pregnant, during pregnancy, and while they are breastfeeding.
- Lactmed/NIH
 - In general, professional guidelines recommend that cannabis use should be avoided by nursing mothers, and nursing mothers should be informed of possible adverse effects on infant development from exposure to cannabis compounds in breastmilk. In addition to possible adverse effects from cannabinoids in breastmilk, paternal cannabis use may also increase the risk of sudden infant death syndrome in breastfed infants.
- Surgeon General 2019
 - Maternal marijuana use may still be dangerous to the baby after birth. THC has been found in breast milk for up to six days after the last recorded use. It may affect the newborn's brain development and result in hyperactivity, poor cognitive function, and other long-term consequences. Additionally, marijuana smoke contains many of the same harmful components as tobacco smoke. No one should smoke marijuana or tobacco around a baby

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Counseling Challenge

- Lack of Quality Studies
- Legal vs. Illegal Drug?
- Occasional vs. Chronic User

Public Health Responsibilities

- Educate families about potential harms of child
- Practitioners who prescribe or work with pregnant families should have cannabis education
- Informational materials should be available at all sites that prescribe or sell marijuana, and a government warning label, similar to alcohol, regarding marijuana use and pregnancy should be posted” (Chasnoff, 2017)
- Government should fund research about impact of cannabis during perinatal period

Stop Bias

- African American women 10X more likely to be reported for positive screens*

Resources

- National Advocates for Pregnant Women advocatesforpregnantwomen.org
- Elephant Circle elephantcircle.net

Questions:

info@motherjourney.com

motherjourney.com

Subscribe to my research newsletter:

Text Breastmilk to 66866

Social Media Handles:

[@motherjourneylaurelwilson](https://twitter.com/motherjourneylaurelwilson)

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