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Perinatal Marijuana Exposure




Overview

Upon consumption during pregnancy, tetrahydrocannabinol (THC), the major psychoactive component of marijuana, crosses the placental barrier. This raises important concerns about the potential impact of maternal marijuana use on the developing fetus.[1,2] In addition, early childhood exposure to THC through breast milk or secondhand marijuana smoke has been found to be harmful, as has emotional detachment that may result from chronic marijuana use.[3,4,5]

Prevalence of Marijuana Use among Pregnant and Parenting Women

- Marijuana is the most common illicit drug used by pregnant women.[8] Marijuana use by pregnant women varies by demographic characteristics such as race, maternal age, and socioeconomic status (SES).[8] Higher incidence rates have been reported in low SES and adolescent populations.[9,10]
- Women who are pregnant are substantially less likely to report marijuana use than their non-pregnant counterparts.[11]
- As pregnancy progresses, fewer women report using marijuana. Specifically, 4.6% of pregnant women in their first trimester report using marijuana in the past month compared with 1.4% of women in their third trimester.[11]
- Many women resume using marijuana after pregnancy. Of women with a child less than three months old, 3.8% reported using marijuana.[11]
- Women who use marijuana during pregnancy are more likely to smoke cigarettes, drink and consume other illicit drugs.[12]

Methods of Mother to Child THC Transmission

- One-third of THC in the mother's blood is estimated to cross the placental barrier.[2]
- THC is secreted through breast milk.[2]
- Given the substantial increases in THC content of marijuana over the past 20 years, fetuses of marijuana-using mothers are being exposed to significant amounts of THC.[2]
- Secondhand marijuana smoke can pose a health hazard resulting in illness or altered consciousness in infants and young children.[5]

Biological and Developmental Effects in Infants and Children

Attributing biological and developmental complications to prenatal marijuana exposure (PME) is speculative due to polysubstance use, undefined use patterns, the influence of social and genetic factors, and practical problems in conducting prospective longitudinal studies.[13]

Nonetheless, recent research findings point to some adverse biological and developmental consequences of PME, including:

- an association between aspects of nervous system functioning and prenatal exposure to marijuana resulting in compromised patterns in infancy (e.g., poor sleep patterns, easily startled into agitation) and in childhood (e.g., hyperactivity, inattention, impulsivity);[1,8]

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The prevalence and effects of synthetic marijuana products, such as Spice and K2, are not addressed in this brief due to limited data in the literature.[6] However, they have been reported to cause greater adverse health effects in users compared to marijuana, including cardiovascular problems, seizures, unresponsiveness, panic, psychosis, and fatality. Additionally, synthetic marijuana products do not appear in routine drug testing.[7]

- persistent negative effects (birth through age 16) on executive functioning, in particular, on attention, problem solving, memory, and planning;[8,9,14]
- increased levels of depressive symptoms at age 10;[15]
- greater likelihood to initiate and use marijuana at higher levels by age 14 and a doubled risk of marijuana and tobacco use at ages 16-21;[14]
- possible harm to embryonic development, as early as two weeks after conception;[7,16]
- possible higher risk of exhibiting a compromised immune system; and[17]
- possible low birth weight or preterm birth.[14,18,19]

Impact of Chronic Use on Parenting

Heavy marijuana use can have negative consequences for parents' health and their parenting capacity. This includes:

- altered consciousness and impairment in attention, judgment, and driving performance;[3,20]
- memory impairment; and[3]
- parental inability to promote optimal child development due to emotional unavailability, negative parent–child relationship, poor modeling behavior, and potential parent-child attachment challenges.[3,4]

Screening and Intervention Strategies

- The Substance Use Risk Profile-Pregnancy Scale has been shown to be a brief, flexible, and effective screening tool for substance use in pregnancy, including marijuana.[21]
- A screening question about marijuana use can function as one indicator of greater risk of alcohol and drug use.[21]
- Although not studied specifically with pregnant users, cognitive behavioral therapy, motivational enhancement, and complimentary medication therapies have been demonstrated to be effective for reducing marijuana use.[14]
- Incentive-based interventions (e.g., vouchers redeemable for retail items) have led to significant marijuana abstinence.[22]
- Research supports the use of brief interventions to address marijuana use in pregnant teenagers.[10]
- Screening children early for negative effects on executive functioning followed by appropriate interventions may prevent future learning problems for children impacted by PME.[9]

Conclusion

Despite the high prevalence of marijuana use among pregnant and parenting women and documented adverse outcomes, the impact of marijuana exposure on the developing brain is still not well understood.[1] While more research is needed, one of the most established findings is the impact of PME on a child's executive functioning. Developmental outcomes of children impacted by maternal marijuana use are determined by many factors including dosage and timing of exposure, as well as pre- and postnatal environmental conditions.

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