Cannabinoids and Autism

DEBORAH BILDER, MD
EVEN THOUGH I AM:
ASSOCIATE PROFESSOR IN THE DEPARTMENT OF PSYCHIATRY, DIVISION OF CHILD AND ADOLESCENT PSYCHIATRY; ADJUNCT ASSOCIATE PROFESSOR IN PEDIATRICS AND EDUCATIONAL PSYCHOLOGY
I AM NOT HERE TO REPRESENT THE UNIVERSITY OF UTAH
Disclosures

• Consultant, Advisory Board and Steering Committee member for BioMarin Pharmaceuticals
• Clinical Advisors Board member for Taysha GTx
• Consultant for Encoded Therapeutics
• Owner and founder of Resero LLC
In Utah, you can legally get a prescription for marijuana to treat autism
This was NOT the recommendation of the Utah Medical Association
I can explain...
Autism Spectrum Disorder (ASD)

- Impairment in social communication/interaction
- Utah, you can legally get a prescription for marijuana to treat autism
- Restricted, repetitive interests or behaviors
- Onset during childhood

Agitation is not a core feature of ASD
Evidence-based Treatment for ASD

- **Skills-based Intervention** – the earlier the better!
- **Applied Behavioral Analysis (ABA)** – strongest evidence-basis
- **PECS (picture exchange communication)**
- **Augmentative communication**
Evidenced-based Medication Treatment of ASD:
“Evidence-based” treatment for agitation

- FDA has approved two antipsychotic medications for the short term treatment of agitation/irritability
- Medical prescribers’ knee jerk reaction to agitation in this patient population is to prescribe antipsychotics.
- Prescribing antipsychotics may be fast and easy, but it is plagued with serious long-term side effects and complications

...and it often doesn’t fix the problem.

Agitation

- Pain
- Sleep disturbance
- Other medical conditions
- Psychiatric disorder
- Psychosocial stressors
- Inadvertently reinforced behaviors
- Communication challenges

McGuire K, et al. (2016) Pediatrics, 137(S2)e2015851L
Psychiatric Comorbidity: Children with ASD

- At least 72% had at least one additional psychiatric diagnosis
- specific phobia (44%),
- Obsessive Compulsive Disorder (37%)
- ADHD (31%)
- Major Depressive Disorder (10%)
- Oppositional Defiant Disorder (7%)
- > 1 was common

Underlying causes of agitation are not routinely identified and treated Because:
1. Most medical providers do not have the expertise to know what to ask to identify the underlying condition
2. Even if they did have the expertise, they do not have the time to ask all of these questions

Parents look elsewhere for answers
Which is why...

- In Utah, you can legally get a prescription of marijuana if you have autism

Yet...

- This was NOT the recommendation of the Utah Medical Association
Marijuana:

- Plant-derived cannabinoids:
  - δ-9 tetrahydrocannabinol (THC) -- the main psychoactive component
  - Cannabidiol (CBD) – the FDA-approved treatment for severe seizure disorders
CBD

- Reduces neural excitation
- FDA-approved for severe seizure disorders (Epidiolex)
- *Potential* benefit are being investigated for addiction, anxiety, psychosis, autism
- Anxiolytic effects may have a U-shaped curve with a therapeutic window of response

CBD **without** THC may have therapeutic value for psychiatric disorders with relatively minimal side effects.

Although efficacy has not been proven, CBD is a reasonable option if proven treatments have failed and cost is not prohibitory.
THC

- The main psychoactive component
- Causes the high
- Neurologically activating
- Responsible for the analgesic, antiemetic, and appetite stimulation properties of marijuana
- Also responsible for the perceptual alterations, paranoia/psychosis, impaired learning, memory, attention

The Ugly: THC causes psychosis

- Likelihood of developing psychosis among daily THC users increases with THC potency
- In a recent study by Di Forti et al, “daily marijuana use and high-potency marijuana (THC content >10%) are the strongest independent predictors of whether an individual will have a psychotic episode. “
- THC use associated with antipsychotic treatment failure and relapse
- Patients with schizophrenia and a history of cannabis use have longer durations of their first hospitalization (59 days v. 30 days) and a higher rate of readmission (10 times v. four times).

Autism and psychosis

- Individuals with autism are at higher risk for developing psychosis.
- The propensity towards psychosis in autism is unmasked by FDA-approved drugs that demonstrated during clinical trials to cause psychosis: stimulants, atomoxetine, and amantadine.
- It can take months, sometimes years, to see this complication emerge.
- A core feature of autism is the ability to communicate one's thoughts and feelings – this is a problem when trying to monitor a patient for the emergence of early psychotic symptoms.
- Because psychosis is something that often emerges over time, patients and their families do not attribute agitation caused by psychosis to the medication that was started months or years ago.

I have seen this over and over again.
Where is the Evidence?

- In support of THC use for autism:
  - Testimonials
  - A few published case reports
  - One retrospective study demonstrated reduced agitation in 44 of 60 children (except one girl developed psychosis after 6 months and two other children experienced an escalated of their agitation).
  - ...but a subsequently double blinded placebo-controlled trial failed to show treatment efficacy in its primary endpoint

Where is the Evidence?

- Against THC use for autism:
  - Psychosis is a real problem
  - I can share several patient stories, where new onset psychosis occurred months after starting THC
Despite the promising testimonials, there is no evidence meeting the standard of proof in medicine to support THC’s efficacy in treating ASD.

Yet, there are mountains of strong evidence demonstrating that (1) individuals with autism experience greater vulnerable to developing psychosis and (2) THC causes psychosis in vulnerable individuals.
Those who treat autism with THC do so at their peril. Those who use THC to treat agitation associated with autism can be creating a much bigger problem.

- **CBD without THC** may have therapeutic value for psychiatric disorders with relatively minimal side effects, though strong evidence for efficacy is still lacking.

- Although evidence for efficacy of CBD on psychiatric disorders has not yet met the standard of proof set in medicine, **CBD without THC** is a reasonable option if proven treatments have failed and cost is not prohibitory.