

Bradycardia and First-Degree AV Block following Unintentional Cannabis Ingestion in a 2-year-old Child: A Case Report

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Introduction

An increasing trend of cannabis use places children at risk for the detrimental effects of marijuana. US poison control centers has been receiving an upsurge of calls involving marijuana ingestion among children in the past years, specifically in states where marijuana is legal. Neurologic symptoms predominate but cardiovascular manifestations were also observed. Bradycardia and bradyarrhythmia, which are both uncommon cardiac manifestations of cannabis ingestion in children, are reported in this case.

Case Description

Mother subsequently admitted that the child ingested an unknown amount of THC-laced gummies while she was busy in the kitchen, an hour before onset of symptoms. Complete blood count, electrolytes, creatinine, liver enzymes, bicarbonate, ethanol, salicylate and acetaminophen level were all unremarkable. Heart rate was normal four hours after cannabis ingestion and patient was alert and active twelve hours after. Counseling was done regarding child safety at home and patient was discharged with a normal EKG after 36 hours of hospital stay.

Case Description

A previously healthy 33-month-old male presented with lethargy, an hour after an alleged choking episode. Mother denied trauma or ingestion of substances but admitted occasionally smoking marijuana at home. On examination, patient was lethargic, afebrile, normotensive, bradycardic (65- 78 bpm), with normal respiration and oxygen saturation. There were no signs of trauma or dehydration. Pupils were 2 mm and reactive and throat was clear. Cardiac examination was normal except for bradycardia. Neck and chest radiography were done to rule out foreign body ingestion but were unremarkable. Electrocardiogram (EKG) revealed sinus bradycardia with a PR interval of 184 ms (upper limit 155 ms), 1:1 Atrioventricular (AV) conduction, consistent with a first- degree AV block (Figure 1). Urine drug screen was positive for Tetrahydrocannabinol (THC) (cutoff value: 50 ng/mL

Discussion

Most unintentional cannabis ingestions occur in children less than 5 years old. They most commonly present with somnolence but can also present with life-threatening coma or seizures.

Cardiovascular manifestations may also occur. Tachycardia is the most frequent while bradycardia and AV blocks are rare. They result from increased cardiac vagal tone, which more commonly occur in higher doses of cannabis exposure. Children tend to consume high doses of THC from cannabis edibles since they are palatable and come in colorful non-childproof packaging. Onset of symptoms is usually 1 to 2 hours after ingestion and last between 2 to 24 hours. Management is mainly supportive and should emphasize importance of child supervision and injury prevention at home.

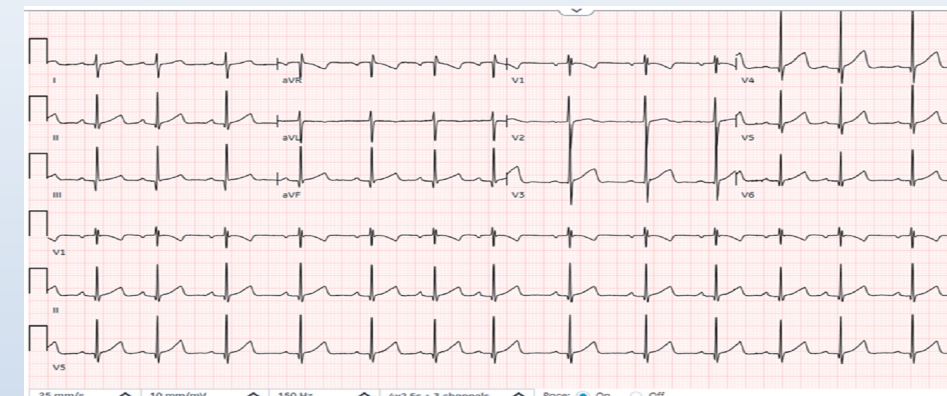


Figure 1: Twelve- lead ECG showing normal sinus rhythm with a first- degree AV block (prolonged PR interval of 180 ms with 1:1 AV conduction).

Conclusion

Although bradycardia and first-degree AV block are uncommon after cannabis ingestion in children, clinicians should be aware of these findings and must consider evaluating for marijuana toxicity whenever presented with these acute signs. Prevention is also of paramount importance and could be achieved through supervision, parental education and support.