

## Arrhythmia: Neonatal Cannabis Withdrawal Syndrome

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### Case Report

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### Abstract

Fetal exposure to cannabis causes many risks, the main one is the neonatal withdrawal syndrome. This syndrome associates neurological and digestive signs. Arrhythmias are rarely described. It can be life threatening. We report a neonatal withdrawal cannabis syndrome revealed by arrhythmia; with a literature review and an observation collected at the neonatal intensive care unit, Mohamed VI University Hospital, Marrakesh. She was a newborn female, admitted at the first hour for arrhythmia. Her mother was a massive exposure of the passive cannabis throughout pregnancy. The fetal heart rhythm disorder that motivated the caesarean section. At admission; the newborn had presented bradycardia of up to 40 beats per minute and tachycardia especially during stimuli. The somatic and the paraclinical examination were all normal. Neonatal withdrawal syndrome was diagnosed. Continuous monitoring was rigorous, means of nursing by decrease the sound and luminous stimuli, a rich and fractionated diet and the kangaroo method. There was an improvement in heart rate after 10 days.

**Keywords:** Arrhythmia; Cannabis; Newborn; Withdrawal syndrome

### Introduction

Various obstetric and developmental complications in prenatal exposure to cannabis were revealed. Fetal exposure to cannabis is associated with many risks; the main one is neonatal withdrawal syndrome. This syndrome associates neurological and digestive signs. Arrhythmia is rarely described [1]. It can be life threatening. We report the effects of cannabis exposure on the fetus and neonatal and the complications: from the literature review and an observation collected at the neonatal intensive care unit, University Hospital Mohamed VI, Marrakesh.

### Case Report

She was a female newborn; her mother had a massive exposure to passive cannabisism during pregnancy. There aren't any other drugs that may be used by the father or the mother during pregnancy. Fetal heart rate monitoring during the labour had demonstrated: Fetal heart rhythm disorder with deep decelerations, which prompted emergency cesarean delivery for acute fetal distress. At birth, there was a pink and reactive newborn, Apgar score was 8/10. She was admitted at the first hour of life for arrhythmia. At admission; the newborn was eutrophic, pink reactive, neurological examination was normal. The cardiac examination and the electrocardiography had

found arrhythmia. The newborn had bradycardias of up to 40 beats per minute, which persisted about 1 min and recurred. Tachycardia at 180 beats per minute was also present mainly during stimuli. The rest of clinical examination was normal, the blood ionogram, liver and renal function, hemoglobin, glucose, C-reactive protein and the echocardiography were all normal. Electrocardiography was revealed a sinus arrhythmia. Serum and/or urinary cannabis levels weren't available in Morocco. The neonatal cannabis withdrawal syndrome was diagnosis in this case; with massive cannabisism, normal clinical and paraclinical examination and arrhythmia disappeared after stimuli's cessation. Cardio-respiratory monitoring was rigorous. Nursing means were applied, reducing the sound and luminous stimuli, breastfeeding, a rich and fractionated diet and the kangaroo method. The evolution was favorable: There was a normalization of the heart after 10 days. Currently we have recoil of 8 months, with a normal psychomotor development. Long-term monitoring is planned for behavioral, memory and psychomotor developmental disorders.

## Discussion

Essential studies from the literature reveal various obstetric and developmental complications in prenatal exposure to cannabis [2]. The vascular complications of cannabisism are still widely discussed and their incidence seems low in relation to the frequency of exposure to cannabis in the general population. The active compounds of cannabis, particularly delta9 tetrahydrocannabinol, cross the placental barrier and accumulate in lipids of the fetal brain. Carbon monoxide produced during inhalation may affect the fetal tissues oxygenation [3]. Cannabis is not recognized as a teratogenic agent. Recent experimental and epidemiological studies show no increase in the incidence of congenital abnormalities in infant exposed to cannabis during pregnancy. The results are more pejorative on the long term fate, probably in relation to endocannabinoids in cerebral maturation of gestation [4]. The vascular complications of cannabis are still widely discussed and their incidence appears low in relation to the frequency of exposure to cannabis in the general population. It has been shown that the cannabinoids absorbed by the pregnant woman reach the infant's blood circulation [5]. The compounds derived from cannabis (whatever their nature) will have an impact on both the mother and the infant in utero.

There was an association between maternal use of cannabis and the risk of sudden infant death, after controlling for ethnic variables and tobacco consumption.

The use of cannabis by the father would also increase the risk of sudden infant death if the father consumes before, during and after pregnancy. A syndrome related to the opiate withdrawal syndrome is sometimes observed clinically in the newborn exposed in utero to cannabis [6].

The possibility of clinically significant cardiac arrhythmias after chronic or acute use of cannabis is limited to a few isolated clinical cases. Sinus tachycardia, non-threatening, is classical and is proportional to exposure. There is however the possibility of sinus bradycardia, atrial fibrillation, atrioventricular blocks or, more rarely, malignant ventricular arrhythmias [7]. The mechanism responsible for ventricular arrhythmias may be an increase in the activity of Purkinje fibers [8].

## Conclusion

The effects of cannabis on the limbic system of the fetus during pregnancy could result in several consequences including: sleep disorders, nighttime excitement, frequent awakening during sleep, attention disorders. In the literature; the evaluation's modalities of severity and on the treatment show a lack of therapeutic consensus. The active participation of the mother in nursing care clearly improves its development and reduces the use of medication.

## Conflict of Interest

The authors declare that they have no conflict of interests.

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