

Severe Maajoun Poisoning in Two Infants, Morocco

Achour S^{1*}, Jalal Gh², Abourazzak S³, Soulaymani R^{2,4} and Hida M³

¹Unit of Toxicology, University Hospital Hassan II, Fez 30000, Morocco

²Moroccan Poison Control and Pharmacovigilance Centre, Rabat, Morocco

³Department of Pediatrics, University Hospital Hassan II, Fez 30000, Morocco

⁴Faculty of Medicine and Pharmacy of Rabat, University Mohammed V, Morocco

Abstract

Maajoun is a pastry mixture prepared from hemp resin and other aphrodisiacs. It is widely consumed in Morocco for addiction and its aphrodisiac effects. Its frequent and common consumption in adults expose the children and infants to serious accidental intoxication leading sometimes to death. We report two cases of severe poisoning in two infants due to an accidental ingestion of Maajoun with good outcome after a symptomatic treatment.

Case 1: An infant aged 14 months accidentally ingested a piece of Maajoun and he presented coma, hypothermic, bradycardia and mydriasis. The biological test was normal. The toxicological analysis using immunological methods carried out on the urines was positive for the tetrahydrocannabinol (cannabis) and the Benzodiazepines. The evolution was favourable without any complication nor sequelae.

Case 2: A 12 months healthy infant without any previous significant pathology was admitted to the emergency for apyretic seizures. The clinical exam objectified a tonico-clonic crisis of the four limbs with revulsion eyes and pupils in mydriasis. No neurological deficiency was associated. The infant was tachycardic at 180 beats / min, apyretic and normotensive. Toxicological analysis in blood and urine was negative for medication and pesticides. The appearance of fever to 38.5 justified the practice of lumbar puncture and a CT scan that came back normal excluding cerebromeningeal affection.

A new oriented interrogation revealed addiction notion at the neighbours'. The toxicological research using immunochemical method "Olympus" has confirmed a high level of cannabis (150 ng/ml). The evolution was favourable after symptomatic treatment. The infant was discharged from the hospital after 24 hours of medical supervision.

Conclusion: Accidental maajoun poisoning in infants can be serious and leading sometimes to death, health professionals should be aware of this fact and of the management of this type of poisoning in children.

Keywords: Maajoun; Severe poisoning; Toxicological analysis; Infant; Morocco

Introduction

Maajoun is a pastry mixture prepared from hemp resin and other aphrodisiacs. It is widely consumed in Morocco for addiction and its aphrodisiac effects. According to Moroccan Poison Control Centre data [1,2], Maajoun represents the first drug poisoning cause (62.6%) followed by the cannabis in 23.5%. Its frequent and common consumption in adults expose the children and infants to serious accidental intoxication leading sometimes to death. The published cases in literature are exceptional and concern especially adults. We report two cases of serious poisoning in two infants due to an accidental ingestion of Maajoun and who recovered favourably after a symptomatic treatment.

Case 1

An infant aged 14 months accidentally ingested a piece of Maajoun. He took it for chocolate (Figure 1). Two hours later, he was brought to the pediatric emergency of Hassan II University hospital for loss of consciousness. The exam in admission showed that the infant was comatose (Glasgow to 8), hypotonic, hypothermic to 35.6°C, bradycardic, and his pupils were in bilateral and symmetrical mydriasis. The rest of the somatic exam was normal. The biological test required in emergency (blood count, ionogramme and the acidobasic check-up) was without any particular characteristics. The toxicological analysis using immunological methods carried out on the urines was positive for the tetrahydrocannabinol (cannabis) and the Benzodiazepines. The

parent recognized that they are regular consumers of the drug and the Benzodiazepines are included in the mixture.

The evolution was marked by the alternance of restlessness and drowsiness. The consciousness state was recovered 10 hours later without any complication or sequelae. The infant got back home after 3 days of hospital care.

Case 2

A 12 months healthy infant without any previous significant pathology was admitted to the emergency for apyretic seizures. The clinical exam objectified a tonico-clonic crisis of the four limbs with revulsion eyes and pupils in mydriasis. No neurological deficiency was associated. The infant was tachycardic at 180 beats / min, apyretic and normotensive. The abdominal, cardiopulmonary and cutaneous examination didn't show any characteristics. The infant was rapidly placed in a safe condition and convulsions were quickly stopped by the

*Corresponding author: Achour Sanae, Unit of Toxicology, University Hospital Hassan II, Fez 30000, Morocco, E-mail: achoursanae@gmail.com

Received March 11, 2013; Accepted March 30, 2013; Published April 01, 2013

Citation: Achour S, Jalal Gh, Abourazzak S, Soulaymani R, Hida M (2013) Severe Maajoun Poisoning in Two Infants, Morocco. J Alcoholism Drug Depend 1: 117. doi:10.4172/2329-6488.1000117

Copyright: © 2013 Achour S, et al. This is an open-access article distributed under the terms of the Creative Commons Attribution License, which permits unrestricted use, distribution, and reproduction in any medium, provided the original author and source are credited.



Figure 1: Pieces of Maajoun.

intra-rectal valium (dose to 0.5 mg/kg). Laboratory tests required in emergency didn't show any metabolic disorder. The examination did not retain any notion of family epilepsy, trauma or contagion, but the infant could have access to psychotropic medications taken by the father and chloralose pesticides recently used as raticide. Toxicological analysis in blood and urine was negative for barbiturates, phenothiazines, benzodiazepines, tricyclic antidepressants, salicylates as for chloralose pesticides. Cholinesterase activity was normal eliminating an anticholinesterase pesticide (organophosphates, carbamates). Colorimetric and immunological methods are used for detecting medication, and spectrophotometric are used for dosing cholinesterase activity. Chloralose pesticides are searched by colorimetric technique. The appearance of fever to 38.5 justified the practice of lumbar puncture and a CT scan that came back normal excluding cerebromeningeal affection.

A new oriented interrogation revealed those 3 hours before the crisis, the infant was among neighbours whose son is a drug addict. The toxicological research using immunochemical method "Olympus" has confirmed a high level of cannabis (150 ng/ml) for a threshold value of 50 ng/ml, the toxicological screening of the other drugs (morphine, cocaine, ecstasy, amphetamines and methamphetamines) using immunological methods was negative.

The management consisted on the infant hydration, the state of consciousness and cardiorespiratory monitoring; the investigation carried by the family has objectified the lack of a piece of Maajoun at the neighbours'. The evolution was favourable, the convulsions were stopped and the consciousness was recovered. The infant was discharged from the hospital after 24 hours of medical supervision.

Discussion

Maajoun is a traditional mixture mostly used in Morocco for addiction and its aphrodisiac effects. Its frequent consumption exposes child to the risk of accidental intoxication with serious consequences. A retrospective study realized by the Moroccan poison Control Center which involved all drug poisoning in children collected between 1981 and 2009, showed that the Maajoun was top of the list with (69.5%) followed by cannabis. The circumstance was accidental in 89.1%. In addition, 06 serious cases of accidental intoxication occurred in infants were admitted to the paediatric intensive care unit of the University

Hospital of Rabat between 2010 and 2011, and the circumstance was accidental in all the cases.

The maâjoune seems to be specific to Morocco, India and Turkey, with likely some differences in the composition. But the presence of Cannabis, poppy and an anticholinergic plant: *Datura stramonium*, *Atropa belladonna*, *Hyoscyamus albus*, *Mandragora officinarum*, is almost constant [3,4]. Some condiments such as cardamom, nutmeg, grains of paradise and cantharides may be added to the mixture [4]. Maâjoune toxicity seems to be related to the toxicity of cannabis resin highly concentrated on Tetrahydrocannabinol (THC); a principal psychoactive substance and potentiated by anticholinergic syndrome of solanaceae plants already mentioned [4,5].

Indeed, these plants contain some alkaloids (hyoscyamine, atropine, scopolamine) that block anticholinergic receptors of central and peripheral nervous system, thus leading to an encephalopathy with neuropsychiatric manifestations involving confusion, hallucinations, delirium, dysarthria, tonico-clonic movements with symmetrical and bilateral mydriasis and some neurovegetative signs including mucous dryness, urinary retention, constipation, and sinus tachycardia.

Some Maâjoune addict can add psychotropic, especially benzodiazepines (Clonazepam) and neuroleptics (haloperidol) to increase sought feelings [5]. That was the case in our first patient where the toxicological research has demonstrated some benzodiazepine beside some cannabis. The symptomatology presented by our patients is perfectly agreed with the few cases described in the literature [3-6].

In children, clinical symptoms are more expressive compared to adults, Indeed, convulsions and coma objectified in our patients are rare and seem to be related to the neurological toxicity of cannabis increased by anticholinergic encephalopathy.

The diagnosis is also more difficult to suspect in the child and should be suspected in brutal disorders of consciousness that occur in a child with no medical history.

The parents must be asked clearly about drug consumption and the search for cannabinoid derivatives in urine (by immunofluorescence or radioimmunoassay) must be systematic to avoid an irradiating cerebral CT scan or lumbar puncture.

Concerning the therapeutic management, it is essentially symptomatic and should not wait for biological confirmation: hydration survey, oxygenation, orotracheal intubation with mechanical ventilation if necessary, cardiopulmonary monitoring [5,6]. Diazepam is the best treatment for seizures and anticholinergics are inadvisable [7,8]. Gastric decontamination and administration of activated charcoal within one hour of ingestion could be beneficial. Similarly, some studies have reported the efficacy of flumazenil as antidote of cannabis (0.2 mg in 1 or 2 injections at 3 min intervals, effective into 1 min) [9].

Physostigmine which is a medicament with reversible anticholinesterase action can be proposed to antagonize the anticholinergic effects. However, this antidote has a short half-life that grows to repeated doses and risk of seizures. It is thus reserved for severe forms [10]. Monitoring is recommended at least 6 h after ingestion and should be continued 24 hours if the child becomes symptomatic. The evolution is generally favorable; however, two deaths have been reported in the literature and seem to be due to a long delay in treatment or the association of other toxics (Figure 1).

Conclusion

In Morocco, Maajoun poisoning in infants isn't exceptional. It is absolutely necessary to organize a medico-social support for parents of victims to prevent recurrence by preventive and educational measures. On the other hand, health professionals should be aware of this fact and of the management of this type of poisoning in children.

References

1. Chaoui H, Rhalem N, Ouammi L, Badrane N, Semlalil, et al. (2011) Intoxications par les drogues au Maroc : Données du Centre Anti Poison du Maroc (1980-2008). *Toxicologie Maroc* 8: 6-9.
2. Achour S, Rhalem N, Khattabi A, Bouffini S, Soulaymani R (2012) Drug Poisoning in Moroccan Children. *Clinical Toxicology (Abstract)* 50: 273-366.
3. Baddou N, Mounir K, El Koraichi A, El Haddouri M, El KettaniEch-Cherif S (2012) Intoxication accidentelle au Maajoun chez l'enfant : à propos de 6 cas. Actes du congrès, 4^{ème} congrès international de Toxicologie, Rabat, 84.
4. Bellakhdar J (1997) La pharmacopée marocaine traditionnelle, Médecine arabe ancienne et savoirs populaires. Ibis Press, 183-186.
5. Jalal Gh, Rhalem N, Soulaymani R (2007) Intoxication au Maajoun: Experience du Centre Antipoison du Maroc pendant 14 ans (1992-2005). *Espérance Médicale* 14: 114-116.
6. Moutaouakil S, Charra B, Hachimi A, Benhsein I, Benslama A (2007) Intoxication au maajoun. *Ann Fr Anesth Reanim* 26: 883-891.
7. Hachelaf M, Capelliera G, Danel V (2006) Les toxidromes. *Réanimation* 15: 364-369.
8. Birmes P, Chounet V, Mazerolles M, Cathala B, Schmitt L, et al. (2002) Intoxication volontaire par *Datura stramonium* : 3 case report. *Presse Médicale* 31: 69-72.
9. Molly C, Mory O, Basset T, Patural H (2012) Acute cannabis poisoning in a 10-month-old infant. *Arch Pediatr* 7: 729-732.
10. Rubio F, Quintero S, Hernandez A, Fernandez S, Cozar L, et al. (1993) Flumazenil for coma reversal in children after cannabis. *Lancet* 341: 1028-1029.