Be Careful of Lies: a 6 Years Old Boy with Respiratory Distress and Decreased Level of Consciousness

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Abstract- We reports a six-year-old child with autistic disorder and methadone intoxication. Developmental disorders may mislead the caretakers and doctors to interpret the clinical manifestation and behavioral changes of these patients. Methadone indigestion can be fatal in children even in a tiny amount and cardiac monitoring should be performed at least for the first 24 hours. The pervasive prescription of methadone for detoxification programs and its extensive availability at homes of the addicted parents should point parents, doctors and media to pay more attention to provide safe-home environment for children.

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Case Report

A six-year-old boy presented with stridor, agitation and confusion to the emergency department. His father said the boy started to have noisy breathing since 3-4 hours ago. The child was restless.

On examination, the child manifested intermittently, restless and depressed responsive, the respiratory sounds were decreased on the left lung field, pupils were a little miotic but reactive to light. As the respiratory distress progressed, doctors decided to intubate the patient. On intubation, the tonsils looked large, red and maybe a little inflamed.

The vital signs on admission were as follows: heart rate=110 beats per minute, blood pressure=95/65 mmHg, respiratory rate=11, breathe per minute, temperature=37 centigrade degree. Oxygen saturation in the room air was 88%.

Following intubation, respiratory arrest occurred, cardiopulmonary resuscitation performed and spontaneous respiratory activity restored. The patient transferred to intensive care unit. Following intubation the arterial blood gas performed which showed respiratory acidosis that corrected by changing in ventilator parameters. The urethral catheter installed. Electrocardiogram was normal.

However, parents denied any opium and narcotic abuse in the family, the doctors considered the possibility of opiate toxicity, but the difference between auscultations of lungs made the doctor think of other possibilities like foreign body aspiration.

On completing the medical history after the first steps, the father said that he and his son both had gone to the swimming pool about 5-6 hours ago, and his son ingested much water while swimming in the pool. His mother said that the child had a cough and, she had given one full tablespoon of cough syrup few hours ago, and she added later that maybe the syrup was expired or rotten, as it had a very bitter taste. She repeated this statement several times that the syrup maybe rotten.

The doctors again checked the presence of opium in the house, and the parents accepted that they have opium. They also added that the child has afflicted by autism disorder and diagnosed since four months ago, without any medication treatment.

The intubated boy was restless, so midazolam and fentanyl administered. Ceftriaxone injection added to the medications. Naloxan administered and the patient's condition improved dramatically. Naloxane 0.1 mg/kg repeated once more and by monitoring the clinical condition; the repeated doses did not administer.

On imaging studies, the chest x-ray showed a white hemithorax field (Figure 1).

Lab studies showed normal blood biochemistry (electrolytes, blood urea nitrogen, creatinine, hepatic function tests) with following results of complete blood

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count; white blood cells: 22770/ul, Neutrophil= 20%, lymphocyte= 71%, Erythrocyte sedimentation rate= 3 per first hour, Hemoglobin: 12.1 g/dl, Platlete= 410,000/ul.

Figure 1. Patients chest X ray

Urine toxic screening test revealed the presence of methadone.

Improving the patient's condition and restoring respiratory reflexes and spontaneous respiratory activity, the patient was extubated, the follow-up chest x-ray four hours later showed total improvement of the previous white lung. The patient was monitored for 36 hours in intensive care unit and transferred to the emergency ward for follow-up.

A bronchoscopy performed for ruling out the possibility of foreign body aspiration, which was negative for foreign body, but showed much mucus plaque.

The parents admitted later that they had put methadone in the bottle of cough syrup, and gave it to the child by mistake.

Discussion

Methadone is a synthetic opiate and detoxification of addicts is one of its therapeutic uses. Many cases of accidental poisoning in the children of the addict patients have been reported (2).

Its absorption is rapid by oral route, and the peak plasma concentration is 2-4 hours and the peak of clinical effect is 1-2 hours after ingestion (3). Methadone is metabolized in the liver, and its half life has a wide variation from 15 to 55 hours. The variation in its half life may be attributed to the activity of liver enzymes, the amount of body fat and the level of plasma proteins. After being metabolized in the liver, it is excreted in the urine as inactive metabolites (1).

Most of the methadone intoxications occur in drug addicts, but 69% of mortalities happen in opioid-naive (children and old people) (4). The behavioral change of children with developmental and learning disorders who have taken toxins maybe readily attributed to their developmental problem and the medical emergency situation can be easily missed by caretakers (1).

The common manifestations of opiate toxicity are; coma, respiration depression, miosis, hypotension, bradycardia, hypothermia, pulmonary edema, and some narcotics like propoxyphene can cause seizure (5). Hypoglycemia caused by methadone intoxication has also been reported in adults and children (10).

Respiratory depression that manifests as low respiratory rate is the most easily recognized abnormality in the cases of opioid overdose. Miosis alone is not sufficient for diagnosing of opioid intoxication. Respiratory depression caused by opioids is not related to the peak plasma concentration (9).

Methadone intoxications in all patients with lethargy, miosis and respiratory depression should be considered (6). Even little amounts of methadone could be fatal (7). Methadone can prolong the QT interval which predispose to fatal arrhythmia of torsade de pointes (8). Electrocardiogram monitoring should be part of the initial evaluation of methadone intoxication (5).

In this case, the doctors faced a child with a possible water aspiration, methadone intoxications, autistic behavior, mucus plaque formation in the lungs and uncooperative parents. We do not know that to what degree; the patient's clinical manifestations could be attributed to methadone or water aspiration or his autistic behavior, but it seems that each of them has had a part in the clinical background.

The clinical sign and symptoms of children with developmental disorders can be easily misinterpreted by caretakers or doctors even when brought to emergency departments, as the abnormalities maybe attributed to the previous background.

Parents feared to tell the doctors about methadone reserved in the bottle of cough syrup and given to the child. They also didn't feel easy to talk about their opioid abuse. They have also not educated enough by the doctors who prescribed methadone to them, about the fatal danger of methadone for the children and the safe methadone conservation methods at home to provide a safe-home for their children. Unfortunately, emergency doctors in children hospitals have seen many cases of opiate toxicity in children with a high rate of mortality and morbidity. A mass information campaign to alert

doctors and parents about the dangers of opiate toxicity and safe preservation methods of them at home should be performed.

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