

Characteristic features of patients hospitalized with Narcotic poisoning in Yazd, Iran

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ABSTRACT

Background: Narcotic abuse by people accounts for major problems for developing countries such as Iran. Acute narcotic poisoning is one of the major mortality causes in these patients. The present study was designed to assess the clinical signs and symptoms of patients with narcotic poisoning at hospitals of Yazd.

Methods: In this study, 500 patients with narcotic poisoning were assessed from November 2007 to September 2010. Data were obtained from the patients' files and the statistical analysis was carried out by SPSS version. 16.

Results: Men presented greater signs and symptoms of narcotic poisoning. Of all patients, 39% aged between 20 and 29 and 14.2% aged between 30 and 39. The greatest narcotic usage was reported for methadone (39%) and opium (22.4%), respectively. Respiratory depression was seen in 47.4% of the patients and 15.2% of them needed intubation and mechanical ventilation. Intubation rates were higher in poisoning with heroin (31.6%) and methadone (33.3%), respectively. Among our patients, 8.4% had seizure which was mostly seen in tramadol (28.4%) and heroin (13.7%) users, respectively. Sever decreased consciousness was seen in 25.4% of the patients and poisoning with heroin (40%) and methadone (33.3%) had the highest frequencies in this regard. In this study, mortality rate was 1.4%.

Conclusion: Poisoning symptoms and complications such as respiratory depression, mechanical ventilation, seizure, and CNS depression were prevalent. Proper management of such cases of poisoning can decrease the incidence of complications and mortality rate.

Keywords: Clinical symptoms, Iran, narcotic, opium, poisoning, Yazd

INTRODUCTION

Global epidemy of narcotic use has extended and transformed to an important health issue, especially in developing countries such as Iran (1). According to World Health Organization's (WHO) report in 1999; Iran ranks first in addiction prevalence and opiates were the most commonly used narcotics in Iran (2,3).

Acute opium overdose (AOO) is one of the main causes of addiction complications and mortality in addicted patients (4). Ping-point pupils, nausea and vomiting, decreased level of consciousness, respiratory distress, delayed gastric emptying, hypotension, and bradycardia were considered as AOO signs. Other signs

such as seizure and coma might be seen in some cases (5).

Careful assessment of patients with opium poisoning and their suitable management can decrease their mortality rate. We assessed clinical signs and symptoms of opium poisoning so as to design and develop suitable clinical and management pathways for these patients in Yazd. The findings of this study will help us design future prevention and treatment plans.

MATERIALS AND METHODS

In the present study, 500 patients with opium poisoning who were hospitalized in Shahid Sadoughi, Shahid Rahnemoon, Shahvali and Shahid Beheshti Hospitals

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between November 2006 and November 2009 were assessed.

Patients with history of opium usage and one of the following signs: (1) Central nervous system depression and sever decline in consciousness level (Glassco Coma Score \leq 8), (2) respiratory depression (respiratory rate $<$ 12) and (3) myotic pupils were included in the study. Respiratory depression in these patients was corrected and their consciousness level significantly improved in response to naloxone administration. Heart rate less than 60 beats/minute and blood pressure less than 90/50 mmhg which did not respond to the administration of intravenous fluid were considered as hemodynamic complications. Respiratory complications in the patients were classified as a) respiratory distress and b) the need for tracheal intubation and mechanical ventilation.

This study was carried out according to the local ethics review committee of Yazd University of Medical Sciences that approved the study protocol. The statistical package

SPSS version.16 for Windows (Chicago, Illinois, USA) was used for analysis.

RESULTS

Of all the 500 patients, 77% were male and 51% were married. The highest frequency of age groups were in 20-29 years (39%) and 30-39 years (14.2%), respectively. In addition, 28.8% of the patients used methadone, 22.4% used opium, 19% used heroin, 16.2% used tramadol and in other cases, the poisoning substance were unknown. Poisoning in 68.6% of the cases was oral, in 20.4% it was inhaled, in 9.6% it was injected, and in 1.4% it was body packer. Of the patients, 41.4% used opium for suicide, 30% as habit, 26.8% accidentally, and 1.8% as body packer. Cardiopulmonary arrest happened in 2.4%, ARDS in 0.6%, and hemodynamic abnormality in 8.2% of the patients. The frequency of clinical symptoms can be seen in Table 1. In reviewing the previous history, 68% of the patients had a history of addiction, 18.4% had a history of suicide and 4% had a history of epilepsy and seizure (Table 1).

Table 1- The frequency distribution of clinical signs in patients with opium poisoning according to their substance usage

| Opium usage | Respiratory | | Respiratory intubation ventilation mechanical | seizure | Consciousness changes | |
|---------------|-------------|----------|---|---------|-----------------------|-----------|
| | Depression | Distress | | | GCS \leq 8 | GCS $>$ 8 |
| Unknown opium | - | - | - | - | - | 20 |
| Heroin | 71.6 | 4.2 | 31.6 | 13 | 40 | 95 |
| Opium | 37.5 | 3.6 | 12.5 | 1 | 24.1 | 112 |
| Methadone | 56.9 | 0.7 | 16.7 | 2 | 33.3 | 144 |
| Tramadol | 32.1 | 0 | 3.7 | 23 | 4.9 | 81 |
| Codeine | 11.8 | 0 | - | 0 | - | 17 |
| Others | 54.8 | 6.5 | 16.1 | 3 | 32.3 | 31 |
| Total | 47.4 | 2.2 | 15.2 | 42 | 25.4 | 74.6 |

Regarding the patients' occupational status, 27.5% of our patients were self-employed, 15.7% were unemployed, 14% were housewives, 10.9% were workers, 13.7% were students, 2.8% were prisoner, 1.4% soldiers, and 14% were in other job groups. The

frequency of epilepsy in non-addict individuals (5.9%) was higher than addict patients (5.4%), but this difference was not significant ($P=0.84$). In patients of less than 15 years, 72% used methadone, 22% opium, 4.5% used tramadol and 1.5% used heroin. After the management

of poisoning, 85% of the patients got recovered, 13.6% got discharged with self satisfaction, and 1.4% died (Table 2).

Table 2- The frequency distribution of final situation (outcome) of patients with opium poisoning

| Final situation | Number | Percentage |
|-------------------------------|--------|------------|
| Recovery | 425 | 85 |
| Death | 7 | 1.4 |
| Discharge with self agreement | 68 | 13.6 |

Of the seven mortality cases, one case had tramadol poisoning and other cases were poisoned with heroin. The frequency of respiratory depression in addict patients (56%) was higher than non-addict patients (52.5%), but this difference was not significant ($P=0.07$). Intubation (20.2%) and mechanical ventilation (8.9%) were significantly higher in addict patients in comparison with non-addict patients ($P=0.01$). Sever decline in consciousness level was not significantly different between addict (49%) and non-addict (26%) patients ($P=0.70$).

DISCUSSION

Male patients formed 77% of our patients which is similar to other studies (6-12). Overall, due to environmental and cultural factors, addiction happened more in men. Similar to other studies, most of our patients were young (6-14). Islambulchilar et al reported the most common ages for opium poisoning to be 41-50 and 21-30 years, respectively (7). In WHO's report, mean age of opium usage in Iran was 33 years (3).

In our study, poisoning mostly occurred with methadone, opium, and heroin but in Karbakhsh and Salehian's study in Tehran, opium and heroin were the most commonly used drugs (6) while in Islambulchilar and Jabelameli and Izadi's studies, opium was reported to have the greatest usage (9). In their study on suspected children in Golestan Province, Besharat and his colleges reported the greatest poisoning rate to belong to opium and Shire (opium residue), respectively (15). In some other studies in different countries, heroine poisoning due to its higher prevalence had a greater chance of incidence (16, 17). It

can be assumed that the higher incidence of methadone poisoning in Iran might be related to Methadone Maintenance Therapy (MMT) which has been started in recent years and has increased access to methadone. In other Scottish studies, methadone related mortality was higher than heroin related mortality (18). On the other hand, we hypothesize that methadone might be used with other drugs such as heroin but since methadone use is legal, only methadone was reported by the patients and this over estimates methadone poisoning rate. Families must be considered for keeping methadone at their home and accidental methadone poisoning happened in children due to their families' negligence. Overall, methadone poisoning and related complications in countries that have established use MMT are much higher (19).

In our study, respiratory depression rate was 47.4% and 15.2% of the patients needed tracheal intubation and mechanical ventilation due to heroin and methadone poisoning. In Karbakhsh and Salehian's study, 23% of the patients had $RR \leq 12$ (6) and in Besharat's study, respiratory depression occurred in 10.6% of the patients with opium poisoning (15). Cook reported the incidence of $RR \leq 8$ in 73% of the poisoning cases in the urgency department (5). In Jabelameli's study, respiratory symptoms were reported in 57% of the patients and 11% of them needed ventilation support. Among them, 7% had mechanical ventilation, especially in patients with high dose and delay in hospitalization (9). In a study in 2000, 45.1% of children with opium use presented respiratory signs (20). The Higher rate of respiratory depression in our study might be due to the higher rate of methadone use in our country and the vicinity of its therapeutic and toxic dosage. Methadone had a long half life and cumulative effects on the human body (19). In most poisoning cases, poisoning occurred in suicidal attempts and this fact increased the rate of respiratory depression.

In opium poisoning, we found that pulmonary edema in most cases had a non-cardiogenic origin. This pulmonary edema occurred mainly due to heroine and methadone

overdose. It seems that respiratory vasoconstriction and hypoxia which increase pressure in respiratory capillary system and lead to the leakage of protein which enriches the fluid in alveolar spaces and respiratory tissue, are the main causes of pulmonary edema in opium overdose (21-23). In the present study, we only observed three ARDS cases which were all due to heroin poisoning.

In our study, the incidence of seizure was reported in 8.4% of the patients among whom tramadol and heroin poisoning induced higher rates of seizure. This might be due to the ease of tramadol access even without physician's prescription (24, 25). In heroin abusers, hypoxia and brain damage due to respiratory depression might play the main role in high seizure rate in this regard.

In the present study, CNS signs, such as dizziness and severe decline in consciousness level, were seen in 72% and 25.4% of the patients with heroin and methadone poisoning, respectively. In Besharat's study, CNS signs were seen in 30.3% of the children with opium poisoning (15). Cook reported that 64% of the patients referring to the urgency department due to poisoning had $GCS \leq 8$ (10). According to Jabelameli's study, CNS signs were the common primary signs of patients with opium poisoning (9).

Mortality rate in our study was 1.4% and it was lower than similar studies (6-10). Proper diagnosis and managements of patients with opium poisoning, especially airway management and naloxone injection in urgency departments, clinical wards, or intensive care units can decrease the rate of cardiopulmonary arrest and mortality. Respiratory depression and hypoxia were the most common causes of mortality rate in patients with opium poisoning (9, 23). The lower mortality rate in our study might be attributed to the better management of patients with opium poisoning in our clinical setting since our educational hospitals were associated with Yazd university of Medical Sciences which is one of the suitable developing centers for treatment of poisoning in Iran (26). In contrast to the higher mortality rate in methadone than heroin, six out of the seven patients with heroin poisoning in our

study died. In congruence to the clinical textbooks, respiratory depression and coma in heroin users were higher than methadone users (18). Few deaths happened because of non-respiratory causes such as sudden arrhythmias due to alcohol usage (9).

Similar to Jabelameli (9) and other studies (6, 27), our study showed oral opium usage as the commonest method of drug abuse and these findings presented oral poisoning as an important way of using opium. In accordance with textbooks, severe hemodynamic disturbances, cardiac arrest, and the need for CPR were uncommon in our patients (28).

CONCLUSION

This study showed that respiratory depression is the main mortality cause; therefore, it is necessary that members of clinical teams learn about naloxone usage and airway management. Clinics must have sufficient up-to-date medical instruments for better management of patients with opium poisoning and saving their lives. Public media should teach families to keep opium drugs out of reach of children on high shelves. Similar registration forms must be designed for collecting similar data from patients with poisoning and conducting further studies. Poisoning centers must be established for notifying families and clinicians better.

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