

RESEARCH ARTICLE

CASE SERIES::: AMITRAZ POISONING:CLINICAL PROFILE AND MANAGEMENT::: IS STOMACH WASH AN ANTIDOTE??

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Manuscript Info

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Abstract

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*Key words:-*Amitraz, Stomach Wash Amitraz compound is a triazapentadiene compound of amidine chemical family and is used as an insecticide/acaricide for controling the ectoparasites in animals. It has been found to be consumed for suicidal poisoning in the region near Tirupati, Andhra Pradeash, India. Here we report a case series of 17 patients who presented to emergency department of SVRR Govt General Hospital Tirupati, Andhra Pradesh with consumption of pure amitraz compound without combination of any other compounds during the time period from JAN 20 to NOV 20. The clinical signs, investigation workup and treatment of these patients is dealt in this case series. A stomach wash done within the golden hours of consumption of this toxic compound proves to be life saving in these patients.

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Introduction:-

Amitraz compound is an acaricide, insecticide and has been used in agriculture, veterinary and pharmaceutical industries(1). It is used to control red spider mites, scale insects, aphids, leaf worms, whitefly, bollworms, and pear psylla on Oregon pear crops(2). Poisoning is secondary to accidental or suicidal inhalation and ingestion of the compound and its clinical manifestations are mostly neurological, involving the central nervous system. Here we report a case series of 17 patients with varied presentation and clinical outcome.

Methodology:-

All patients who presented to emergency department of SVRR Govt General Hospital Tirupati with consumption of pure amitraz compound without combination of any other compounds are included in the present study during the time period from JAN 20 to NOV 20. All these patients are admitted in the Intensive Care Unit and all routine investigations are done and in some patients ABG done according to the need. During the hospital stay all patients are monitored for involvement of other systems apart from neurological manifestation.

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Clinical presentation:

17 patients who presented to the emergency department of SVRRGGH, Tirupati AP ,with amitraz poisoning between January 2020 to November 2020 are studied. All these patient belong to the surrounding areas near Tirupati.

Out of 17 patients 8 are males and 9 are females with a male to female ratio of 0.8:1. The mean age of these subjects is 30.2 years with 10 patients in the age group of below 30 years and 7 patients in the age group above 30 years.

5 patients (29.4%) presented to emergency department within 6 hours of consumption of poison whereas the other 12(70.6%) patients presented more than 6 hours after consumption of poison.

The most common clinical presentation observed in the present study is loss of consciousness seen in 11(64.7%) patients at the time of admission.

Tachycardia is observed in 8 patients (47.5%) and bradycardia is seen in 3 patients (17.6%) with mean pulse rate of 95.2

Blood pressure is normal in 15 patients (88.2%) only 1 patient presented with hypotension and 1 patient presented with hypertensive urgency. The mean systolic blood pressure is found to be 119.4 mmHg and the mean diastolic BP is 78.2 mmHg.

13 (76.5%) patients are having miosis at the time of admission while 4 patients (23.5%) are having mydriasis at the time of admission. Out of these 4 patients atropine was administered to 3 patients at local hospital before presenting to emergency department.

6 patients (35.2%) required oxygen support ; among these 3 patients are maintained on nasal oxygen at the time of admission and 3 patients needed intubation at the time of admission probably due to delayed presentation and aspiration .

The mean GRBS value is found to be 132.18 mg% and none of the patients presented with hypo or hyperglycemia episodes.

3 patients developed AKI with rise in serum creatinine but are treated conservatively without need for dialysis and rest of the patients had a serum creatinine within normal limits.

Only 2 patients developed hypokalemia and other dyselectrolytemia are not noted in this study..

Management:

Stomach wash is done to all 17 patients although for 3 patients stomach wash was done in a local hospital before being referred to our hospital.

Among these 17 patients, in 5 patients (29.4%) stomach wash is done within 6 hours of consumption and in these only 1 patient is found to be unconscious. Among those 12 patients in whom the stomach wash is done after 6 hours after consumption, 10 patients(83.3%) are found to be unconscious at the time of admission.

Out of 11 patients who are unconscious at the time of admission about 6 patients regained consciousness by day 2 of admission and 3 patients regained consciousness by day 3 of admission whereas 2 patients did not regain consciousness and expired. The average time duration to regain consciousness is 2.3 days.

Out of 17 patients 6 patients developed respiratory failure. Among them 3 patients required nasal oxygen for 3 days and they survived, while 3 patients needed mechanically ventilation, of which 1 patient survived and rest 2 patients expired.

Table 1:- Various Manifestation Of Amitraz Compound.

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S.NO	CLINICAL FEATURE	NO. OF PATIENTS(%)

1.	Loss of conscious	11(64.7%)
2.	Miosis	13(76.5%)
3.	Mydriasis	4(23.5%)
4.	Regain of consciousness in 2 days	6(54.5%)
5.	Regain of consciousness in 3 days	3(27.2%)
6.	Tachycardia	8(47.5)
7.	Bradycardia	3(17.6)
8.	Hypotension	1(5.8%)
9.	Hypertension	1(5.8%)
10.	Fall in sp0 ₂	6(35.2%)
11.	Nasal oxygen dependent	3(50%)
12.	Mechanically ventilated	3(50%)
13.	Rise in total count in CBC	4(23.5%)
14.	AKI	3(17.6%)
15.	Hypokalemia	2(11.7%)
16.	Mortality	2(11.7%)

Discussion:-

Amitraz is an alpha2 adrenergic receptor agonist. It stimulates $\alpha 2$ receptors in the CNS, $\alpha 2$ and $\alpha 1$ receptors in the periphery and also inhibits monoamine oxidase (MAO) enzyme activity and prostaglandin E2 synthesis.(3)

In most of the cases the loss of consciousness may start rapidly from 20 minutes of consumption to maximum 180 minutes and may last as long as 48 hrs mainly due to its alpha 2 adrenergic action. Hence the most common manifestation seems to be CNS depression effect ranging from drowsiness to coma (3) The CNS depressing effect seems to be more in patient for whom stomach wash is not done at the earliest time possible.

The cardiac manifestation such as bradycardia and hypotension are seen only in lesser number of patients who presented with severe CNS depression at the time of admission whereas patients with no CNS depression effect are noted to have tachycardia in this study.

The respiratory failure is found more frequently in patients with CNS depression which necessitates a need for mechanical ventilation in some patients (4)

Though clinical features can sometimes mimic organophosphorus compound poisoning a clear history is needed to differentiate as symptoms like bradycardia, hypotension, miosis are frequently seen in the latter.

Dyselectrolytemia is usually rare (5) but in our study only potassium levels are found to be disturbed requiring corrections. Alteration of liver and renal parameters is also noted rarely in amitraz poisoning.

At present there is still no antidote available for amitraz compound poisoning. Early stomach wash is the main stay of treatment along with supportive care.

Conclusion:-

Though there is no antidote for amitraz, the study stresses the importance of early stomach wash to prevent the dangerous CNS effects as noted above. The supportive treatment is needed to manage respiratory failure and address the cardiac effects like bradycardia and hypotension.

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