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Abamectin: Uncommon Pesticide Poisoning Case Report

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ABSTRACT

Human intoxication with abamectin is not frequently reported. It is an uncommon but potentially fatal cause of pesticide poisoning. 21 years male was brought to emergency room and as history given by patients father, patient was found unconscious with frothing from mouth. On examination patient was unconscious, with GCS of 3/15, blood pressure of 100/60 mmhg and HR 60/min, and SPO2 52% on room air. Both pupils were non-reactive to light, generalized hypotonia was present. Later, it was found that patient had consumed abamectin. Supportive treatment was continued. Patient's condition improved symptomatically. The therapy for avermectin poisoning is mainly symptomatic and supportive.

KEYWORDS : Abamectin, Neurological toxicity, Respiratory failure

CASE REPORT

The avermectins are a series of drugs used to treat parasitic worms. They are a 16-membered macrocycliclactone derivatives with potent anthelmintic and insecticidal properties[1,2]. Abamectin stimulates gamma-amino butyric acid (GABA) receptors in the central nervous system; this action is used as insecticidal effect[3].

Nausea, vomiting, diarrhea, drowsiness, agitation and weakness are reported in mild poisoning and hypotension, tachycardia, coma and respiratory failure leading to death are noticed in severe poisoning[4]. Abamectin is uncommon agent used for suicide, and limited literature is available concerning human abamectin poisoning. I present to you a case of abamectin poisoning case managed in our hospital conservatively.

CASE REPORT

21 years male was brought to emergency room with history of unresponsiveness with frothing from mouth. No previous history of seizure disorder. There was no history of fever, vomiting, loose stools, hematemesis, hematuria, alcohol intake and psychiatric illness.

On examination patient was unconscious, with GCS of 4/15, blood pressure of 100/60 mmhg and HR 60/min, and SPO_2 52% on room air. Both pupils were non-reactive to light, generalized hypotonia was present. Bilateral plantars were mute. In view of above condition, patient was put on ventilator support and provisional diagnosis of seizure disorder/CVA/ poisoning/encephalitis was taken.

CBC, RFT, LFT, Urine routine were normal. Serum LDH was elevated. Pseudo cholinesterase was within normal limits. Dengue serology, malaria parasite test, widal test, weil felix test were negative.

As there was no improvement in patient condition after 24 hours, neurologist opinion was sought; Lumbar puncture and MRI brain were done. Both the test results were normal.

Blood culture didn't yield any growth. In suspicion of poisoning benzodiazepine and barbiturates were sent, results were negative.

On 4th day of admission, patient father brought a bottle of pesticide containing abamectin which was found in patient's room. Following this, supportive treatment was continued. Patient's condition improved symptomatically and on 5th day he was weaned of ventilator support. Later, patient gave a history of above compound consumption. Patient was discharged on 12th day of admission without any neurological deficits.

DISCUSSION

Abamectin is a mixture of avermectins. The toxic effects of avermectin in humans are not clearly defined[4]. Acute oral lethal dose is reported to be 10 mg / kg.

Avermectins can be absorbed orally, parenterally and via skin contact[4]. Toxic effects can be attributed to the GABA receptor stimulation[4]. Avermectin causes neuronal release of GABA, which leads to increase in membrane permeability of Chloride ions, which results in central nervous system inhibition. The central nervous system inhibition results in anxiety, irritability, drowsiness, convulsions, ataxia, and even coma. Avermectins may also cause hypotension through an increase in serum nitric oxide levels[4].

In cases reported by Wu Liqiang, out of 18 patients, 6 cases developed acute pulmonary edema, 4 cases went into cardiorespiratory arrest[7]. In study done by Chung K et al further reported 49 cases with abamectin poisoning, Most of the patients were asymptomatic and however, 16 cases (34%) had serious manifestations like coma, hypotension[10]. Similarly, our patient was in coma, which indicates severe toxicity. Soyuncu et al, reported a case presented in altered mental status and respiratory failure, which was symptomatically with ventilator support[5].

Treatment of abamectin poisoning is supportive. This product does not have any antidote[4,5]. Maintenance of airway is very essential. Gastric lavage is indicated in abamectin poisoning. Activated charcoal can be used in case of abamectin poisoning. Use of GABA inhibitor is not found to be useful. Appropriate fluid resuscitation and inotropic agents may be required[10].

Coma is rare and serious manifestation of abamectin poisoning, our patient has recovered from coma.

CONCLUSION

Avermectins are newer pesticides that have a wide margin of safety. Abamectin intoxication has lower risk of toxicity in humans. However, large amounts of abamectin consumption can prove fatal in human. Severe poisoned patients may then develop coma, hypotension, met-

abolic acidosis, and even death due to the toxicity of avermectins. There is no specific therapy available and supportive treatment and if necessary ventilator support are the mainstay of treatment

REFERENCES

1. *Ōmura*, Satoshi; Shiomi, Kazuro (2007). "Discovery, chemistry, and chemical biology of microbial products". Pure and Applied Chemistry.**79** (4).
2. Pitterna, Thomas; Cassayre, Jérôme; Hüter, Ottmar Franz; Jung, Pierre M.J.; Maienfisch, Peter; Kessabi, Fiona Murphy; Quaranta, Laura; Tobler, Hans (2009). "New ventures in the chemistry of avermectins". Bioorganic & Medicinal Chemistry.**17** (12): 4085–4095.
3. G T Payne, Action of avermectin analogues on gamma amino butyric acid sensitive and gamma amino butyric acid in sensitive chloride channel in mouse brain. Pesticide biochemistry and physiology, 1993; 47:178-184.
4. Karunatilake H, Amarasinghe S, Dassanayake S, Saparamadu T, Weerasinghe S. Partial ptosis, dilated pupils and ataxia following abamectin poisoning. Ceylon Med J 2012;57:1256.
5. Soyuncu S, Oktay C, Berk Y, Eken C. Abamectin intoxication with coma and hypotension. Clin Toxicol (Phila) 2007;45:299300.
6. Karunatilake H et al. Partial ptosis, dilated pupils and ataxia following abamectin poisoning. Ceylon Medical Journal 2012;57:125-6.
7. Wu Liqiang HU Ye Jia Jiang Haiming. Abamectin poisoning Clinical Analysis of 18 cases. Clinical Medicine Papers 2012-4-17.
8. Edwards G, Breckenridge AM. Clinical pharmacokinetics of anthelmintic drugs. Clin Pharmacokinet 1985;15:67-93.
9. Hsu DZ, Chiang PJ, Hsu CH, et al. The elucidation of epinephrine as an antihypotensive agent in abamectin intoxication. Hum Exp Toxicol 2003;22:433-7.
10. Kong Chung et al. Agricultural Avermectins: An Uncommon but Potentially Fatal Cause of Pesticide Poisoning. Annals of Emergency Medicine 1999;34:51-7.