Case Report

TREATMENT OF AMITRAZ TOXICITY IN A DOG: A CASE REPORT

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A one and half year, female, non descriptive dog was presented to Veterinary College Hospital, Hassan with the history of incoordination, drowsiness and vomiting after accidental oral administration of Amitraz liquid (RIDD®) by the owner. On physical examination animal was dull and depressed. Sedation (drowsiness) and hypothermia was noticed with the rectal temperature of 98.8°F. Hemato-biochemical findings were within the normal range. Based on history and clinical signs, the case was diagnosed as amitraz poisoning and animal was treated with Yohimbine Hydrochloride at the rate of 0.2 mg per Kg body weight intramuscularly and activated charcoal per orally, along with the supportive therapy. Animal was completely recovered after 5 days of treatment.

Key words: Amitraz, Yohimbine, Hypothermia

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INTRODUCTION

Amitraz is a broad spectrum insecticide and acaricide that is used globally in agriculture and veterinary medicine. Amitraz is a member of the formamidine pesticide family. Acute amitraz poisonings are encountered most in dogs and cats. Poisoning occur by oral intake, dermal or by inhalation. After oral intake clinical signs are expected to appear within 30 min to 2 hrs. Nausea, vomiting, hypersalivation, ataxia, lethargy, sedation, CNS and respiratory depression, bradycardia, mydrisis, hypotension and hypothermia are the most common clinical signs of acute amitraz poisoning (Ramesh, 2018).

CASE HISTORY, CLINICAL OBSERVATIONS AND DIAGNOSIS

A one and half year, female, non descriptive dog, weighing 2 Kg, was presented to Veterinary College Hospital, Hassan with the history of in coordination, drowsiness and vomiting after accidental oral administration of amitraz liquid (RIDD®) by the owner. On physical examination animal was dull and depressed. In coordination (drunken walk), sedation (drowsiness) and hypothermia were observed, with the rectal temperature of 98.8°F (Fig.1). Blood sample was collected for hemato-biochemical examination. Hemato-biochemical findings were within the normal range. Based on history, clinical signs and

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physical examination the case was diagnosed as amitraz toxicity.

TREATMENT AND DISCUSSION

The animal was treated with single dose of Yohimbine Hydrochloride at the rate of 0.2 mg per Kg body weight intramuscularly (Plumb, 2008) and activated charcoal 1gram per Kg body weight per orally at 6 hour interval for 3 days (Lee, 2011: Ramesh, 2018). Dextrose Normal Saline 100 ml intravenously and Inj. Ceftriaxone @ 25 mg/Kg intravenously for 5 days. Animal made uneventful recovery after 5 days of treatment (Fig.2). Amitraz liquid is used to control ticks, fleas and lice in dogs. Amitraz toxicity can occur by oral intake, dermal or inhalation route, but in this case, poisoning was mainly because of accidental oral administration of amitraz liquid by the owner. Adverse effects of amitraz include vomiting, sedation, hypothermia, hypotension, bradycardia, pruritus, exfoliative erythroderma, hyperglycemia, and death (Nuttall *et al.,* 2009). Clinical signs observed in the present case are in accordance with the findings of Gberindyer and Oladipo (2015) and Saikrishna and Girish (2023). Sedation in this case may be attributed to CNS α2-adrenoreceptor stimulation as reported by Gberindyer and Oladipo (2015). Amitraz has been reported to have anti- inflammatory and antipyretic properties as well as ability to inhibit Prostaglandin E2 synthesis (Vim *et al.,* 1978). The antipyretic effect must have contributed to hypothermia observed in this case. It exerts toxicity by inhibiting the activity of the enzyme monoamine oxidase and works as an alpha2 adrenergic receptor agonist (Ramesh, 2018). The cardiac effect of alpha2 adrenergic agonists include bradycardia, first and second degree atrio ventricular blockage and diminished cardiac output (Malmasi and Ghaffari, 2010). Thermo genesis was affected and hypothermia decreased the depolarization of the pace maker cells results in bradycardia.

Fig. 1: Animal was dull and depressed with drowsiness

The effects of amitraz can be reversed with atipamezol or Yohimbine (Nuttall *et al.,* 2009). This case was treated with Yohimbine hydrochloride at the rate of 0.2 mg/Kg body weight intramuscularly along with the activated charcoal and supportive therapy (Ramesh, 2018). Animal was already showing vomiting, so was not induce vomiting for the purpose of decontamination. Yohimbine may be efficacious in reversing toxic effects associated with amitraz. It is an alpha2-adrenergic antagonist, that can antagonize the

Fig. 2: Recovered animal after 5 days of treatment

effect of amitraz and it increases heart rate, blood pressure and causes CNS stimulation and antidiuresis and has hyperinsulinemic effects. Animal was completely recovered after 5 days of treatment and amitraz toxicity was successfully managed with yohimbine hydrochloride along with the supportive therapy.

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