

MANAGEMENT OF RARE CASE OF EMAMECTIN BENZOATE POISONING IN A BUFFALO

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ABSTRACT

Agrochemicals are widely used in the control of agriculture pests. Livestock farming being subsidiary to agriculture in India, animals are quite prone to poisoning with such agrochemicals. The present communication highlights the successful management of rare case of Emamectin benzoate poisoning in a buffalo.

Keywords: Emamectin benzoate, *Bubalus bubalis*, buffalo, poisoning, India

INTRODUCTION

Agrochemicals like insecticides and weedicides have been commonly used to destroy crop pests and weeds in order to increase the agriculture yields. Extensive use of these chemicals is causing environmental pollution and health hazards to human beings as well as animals. It has increased exposure of livestock animals to agrochemicals (Eason and Wickstrom, 2001). It may be in the form of accidental access to crops sprayed with insecticides, direct access to prepared or concentrated insecticide solutions due to negligence and improper disposal.

HISTORY AND CLINICAL OBSERVATIONS

A 5 year old advanced pregnant (9 months) buffalo was presented to TVCC COVAS Udgir with history of dullness, anorexia and circling. As per the owners information buffalo has got accidental access to insecticide Missile (Emamectin Benzoate 5% SG) solution prepared for agriculture spray (approximately 5 liter). Clinical findings revealed normal body condition with dull behavior, shivering, incoordination, rectal temperature of 101.4°F, increased respiration (48/minute) and heart rate (72/minute), reduced ruminal motility (1/3 minute), congested mucosae and dry muzzle. There was straining while defecation and urination. Hematology revealed leukocytosis ($14.14 \times 10^3/\mu\text{l}$) with normal Hb (13.8 gm %), PCV (35.36%), TEC ($6.31 \times 10^6/\mu\text{l}$), Neutrophil (46%), and Lymphocyte count (51.1%). Based on clinical findings and history the case was diagnosed for Emamectin benzoate poisoning.

TREATMENT

On first day the buffaloes was treated with Dextrose 5% 3 liter. IV, Diazepam 10 ml IM, vitamin B-complex 10 ml IM, Atropine sulfate 10 ml IM and magnesium sulfate 500 gm orally as

purgative.

On day two, heart rate (48/minute), respiration (24/minute) and rectal temperature (101.5°F) were within normal range. The buffalo was showing response to treatment with improvement in feed and water intake, reduction in signs like circling. Straining was absent during defecation and urination. Shivering and dullness were present. The buffalo was treated with Dextrose 5% 2 liter IV twice a day, vitamin B-complex 10 ml IM and rumenotonic (Bovirum) bolus 2 per OS once a day.

On third day, heart rate (63/minute), respiration (28/minute) and rectal temperature (101°F) were within normal range, feed and water intake were improved significantly. Ruminal motility was 1/1 minute. The clinical signs like shivering and dullness were absent and buffalo was alert and active. Per rectal examination revealed good fremitus and fetal bump. The buffalo was treated with Dextrose 5% 2 liter IV twice a day, vitamin B-complex 10 ml IM and Bovirum bolus 2 per OS. Animal was discharged after successful treatment for 3 days with advice to continue the vitamin B-complex injection for two more days.

DISCUSSION

Various types of agrochemical poisoning occur commonly in livestock animals due to accidental access to the insecticide solutions or by eating of forages sprayed with insecticides (Radostits *et al.*, 2007). Emamectin benzoate (deoxy-4'-epi-methyl-amino benzoate salt of avermectin B1) is an agent of Macrocyclic lactones class. It is widely used as broad spectrum insecticide for control of vegetable pests. It acts through stimulation of high affinity GABA receptors and consequent increase in membrane chloride ion permeability. Mammals

are much less susceptible to Emamectin poisoning due to lower GABA receptor affinities and relative impermeability of blood-brain barrier (Yen and Lin, 2004). No case of Emamectin poisoning has been reported in farm animals previously. The presence of straining while defecation and urination observed in buffalo might be due to the irritation of gastrointestinal mucosa. The nervous signs like shivering, circling and incoordination might be due to depression of CNS caused by Emamectin.

Acute Emamectin benzoate (2.15% w/w 2,6-bis (1,1-dimethylethyl)-4-methyl-phenol and l-hexanol) poisoning was reported in human being with clinical signs of transient gastrointestinal upset due to gastric erosions and superficial gastritis, mild central nervous system depression and aspiration pneumonia (Yen and Lin, 2004). Patient was treated successfully with gastric lavage, activated charcoal administration and antibiotic. So Emamectin benzoate poisoning in dairy animals can be managed successfully with fluids, multivitamins and purgatives/ ruminatorics.

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