

## **ACUTE LEVAMISOLE-FENBENDAZOLE (LEVOB) POISONING IN A SHEEP FLOCK**

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### **ABSTRACT**

Sheep flock of about 138 animals got toxicity after administration of high dose of Levob (levamisole, albendazole and selenium) by the farmer on recommendations of a Para-vet. Clinical signs presented by the flock included congested mucous membrane, depression, anorexia, seizures, ataxia and drooling of saliva. Overall 17 deaths were observed in the flock including 12 deaths prior treatment and 5 deaths during treatment. Post-mortem examination of died animals revealed petechial haemorrhages on kidneys, congestion of liver and lung, haemorrhages on epicardium with moderate congestion of small intestine. Recovery of rest flock occurred after the animals were treated with DNS, Avil and Dexona for 3 days. It is concluded that self-medication or getting animals treated by is Para-vets is a nuisance resulting in high economic losses to poor farmers.

**Keywords:** sheep, deworming, levamisole, toxicity

### **C**ase history and Observations

On 9th of May 2019 at about 2.30 pm, a sheep farmer from Khimber village of Srinagar district (Kashmir) came with the complaint of progressive development of clinical symptoms and 12 deaths (7 lambs, 4 weaners and 1 ewe) in his flock of 138 sheep, after drenching with levob, an anthelmintic suspension containing 5 %, 6.78 % and 1 % of fenbendazole, levamisole-HCL and selenium dioxide, respectively developed. The farmer reported that the first sign after drenching of afore mentioned suspension was that the sheep left taking water. Then, the animals became listless, lethargic with certain onset of frothing within 2 hours after drenching. Accordingly, a team of

doctors rushed to the spot and whole flock was examined. On spot clinical examination revealed congested mucous membrane, depression, anorexia, seizures, ataxia, rapid respiration and drooling of saliva with varied degree of froth around mouth. Post mortem examination of expired animals depicted petechial haemorrhages on kidney along with varied degree of congestion of liver and lung moderate congestion of small intestine. Haemorrhages on epicardium were also observed. Additional 5 deaths (1 rams, two lambs and two female hoggets) were observed during course of treatment in the flock. It was observed that the farmer had drenched the flock 20 to 25 ml

per adult having body weight ranging from 30-45 kg and 5-7.5 ml/lamb having body weight ranging from 5 to 10 kg against recommended dose of 4.5 to 7 ml/adult having body weight ranging from 30-45 kg and 1.13-1.50 ml/ lamb having body weight ranging from 5 to 10 kg.

#### **Treatment**

Keeping in view the history, clinical signs and post-mortem findings the flock was treated with DNS, Avil and Dexona. Immediately the animals showed signs of recovery and started urination, rumination and grazing. Oral drenching of water was also adopted. Intravenous fluid therapy was repeated in severely affected animals. The flock was closely monitored for three days to ensure complete revival of whole flock. Atropine was not used in treating the affected flock as it is not an antidote for levamisole overdose, as it cannot counteract levamisole-induced depolarizing blockade of skeletal muscle (Walter. 2008).

#### **Discussion**

Helminths have constantly been problematic and without doubt a long-standing concern that threatens the livestock industry given that these parasites have a negative impact on animal productivity and welfare, affecting among other things feed intake, growth rate and milk yield (Waller, 2006; Charlier et al., 2014). Levamisole paralyzes parasites by selectively activating nematode nicotinic acetylcholine (ACh) receptors, allowing entry of Na<sup>+</sup>, Ca<sup>2+</sup>, for excessive body muscle contraction, and thus induces paralysis (Walter. 2008). Commercial preparations of levamisole are intended for veterinary use, either alone or in combination with other chemicals as deworming agents in sheep, cattle and pigs. Like other drugs, accidental administration or overdosing of anthelmintics are supposed to cause toxicity in animals (Jadhav et al., 2017). The present case depicted that high dose of commercial preparation of Levob (Levamisole, Fenbendazole and Selenium), 5 to 6 times than recommended dosage was administered to the flock. Since safety index of Levamisole is very

low (Walter. 2008) (3 to 4) as compared to benzimidazoles, the present case of poisoning was suspected to be due to levamisole on exceeding of normal therapeutic dosage (Vercruysee and Edwin, 2014). Also the clinical observations and post mortem changes observed in the present case study weighed down towards levamisole toxicity with fenbendazole and selenium might be acting as potentiating agents. Levamisole acts as an acetylcholine receptor agonist, which leads to muscle contraction and continuing activation leads to ataxia and paralysis (Walter. 2008; Rand, 2007). Levamisole toxicity is largely an extension of its antiparasitic effect i.e cholinergic type signs of salivation, muscle tremors, ataxia, urination, defecation, respiratory failure and collapse (Rehni and Singh, 2010). In present case total deaths recorded were 17 (Lambs-8, Ewes-8 and Rams-1) which might have been due to respiratory failure (Plumb 1999; Hsu, 2008). Clinical recovery started from 2<sup>nd</sup> day after administration of DNS, Avil and Dexona and complete recovery required 3 days of treatment. Gokce *et al.*, (2015) observed similar symptoms in dogs after administration of levamisole. Toxicity in Red Kandhari bullocks was reported by Ravindra *et al.*, (2016) when drenched with oral anthelmintic suspension (Zanide-L DS) containing combination of 6% oxyclozanide and 3 % levamisole. The findings were contrary with (Plumb, 1999), who reported pulmonary edema and allergic skin reactions and consequent death due to the over dose of levamisole in dogs. Thus it can be concluded that cautious approach need to be adopted when levamisole is used as dewormer either alone or in combination form in farm animals and the field staff needs to be trained and educated well regarding the dose and dosage of medicine. Besides levamisole poisoning in farm animals could be managed with supportive treatment and patient monitoring. Further, it is concluded that self-medication or getting animals treated by is Paravets is a nuisance resulting in high economic losses to poor farmers.

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