TOXICITY OF FICUS TSJAHELA LEAVES IN CATTLE AND ITS TREATMENT

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Introduction: Ficus tsjahela is distributed in Southern, Western India, Sri Lanka and India (Yoganarasimhan et al., 1981) and considered as poisonous. The toxicity of Ficus tsjahela is very common in Western Ghats' part of India and there is no good therapy to it. Objectives 1. To study the toxic feature of Ficus tsjahela in cattle 2. To study the biochemical changes 3. To evaluate the effectiveness of a suitable therapy.

Materials and methods: Eighteen cattle with different breeds and sex which were suffering from the Ficus tsjahela toxicity were selected in the present study. Blood samples were collected from jugular vein before treatment of Ficus tsjahela toxicity and subsequent samples were collected at intervals of 24 hours, 48 hours, 72 hours and 96 hours after onset of the toxicity. The rectal temperature, respiration and heart rate were recorded. The serum ALT, AST, BUN, Creatinine, calcium, magnesium, phosphorus and glucose concentrations were estimated and statistically analysed.

Results and discussion: The initial clinical sign observed were salivation and excitement. There was continuous twitching of palpebral muscles. The animals showed hyperaesthesia, frequent movements, restlessness, anxious look, and erect ears. The observed gait abnormality was ataxia, causing in coordination when moving the limbs and the body. Opisthotonus was the characteristic abnormality in dorsal and caudal extension of head and neck with rigid extension of hind limbs and flexion of forelimbs which was was accompanied by dog sitting posture with abducted, caudally extended hind limbs. All the animals were treated with diazepam (1 mg/kg IV) and the clinical signs subsided but re-occurred 8 to 10 hours after the first injection of diazepam and the dose was repeated once again. After 48 hours of the therapy, animals started taking small quantity of fodder and water. Animals treated with diazepam were apparently normal by fourth day. Animals started taking feed and water normally and had normal rectal temperature (101°F), respiration and heart rate. They passed dung of normal consistency and normal urine. There was no significant (P>0.05) difference in concentrations of ALT, AST, BUN, creatinine, calcium, magnesium, phosphorus. There was significant (P<0.05) hyperglycemia. The clinical signs manifested by feeding of F. tsjahela leaves were of clonic-tonic seizures suggesting the neurotoxicity of this plant material. The stimulation of cerebral cortex, limbic system, cerebellum and spinal cord are implicated in genesis of clonic and tonic seizures (Rodostists, 1994). In the present study, diazepam 1 mg per kg intravenously was given at 8 to 10 hour's interval. This interval schedule successfully terminated the recurrence of seizures and this interval is an ideal diazepam schedule in the cattle. Diazepam is being studied for its sedative and appetite stimulating effects in cattle. It induces sedation in cattle at an intravenous dose of 0.4 mg per kg (Booth and McDonald, 1988). In the present study, the dose used was 1 mg/kg is higher than the sedation dose which had reduced the CNS clinical signs of the toxicity without any adverse effects. Although, there is no report on the therapeutic response to diazepam given dose at 8 to 10 hours interval, the dose interval appears to be ideal. Except for hyperglycemia noticed after convulsions, there was no significant change in calcium, magnesium and phosphorus. The observed hyperglycemia after the occurrence of seizures, suggested the possibility of hyperglycemia to the seizures rather the plant Ficus tsjahela effect. Further studies are required using isolated chemical constituents in cattle as well as other models like fowl to assess the toxicity of each chemical constituent.

Conclusion: The present study evaluated the efficacy of diazepam in the toxicity of Ficus tsjahela leaves cattle. The clinical signs in F. tsjahela toxicity were salivation, generalized clonic and tonic seizures, nystagmus, hyperaesthesia, ataxia, paddling movements while in recumbency and stereotyped gnawing behavior or eating inanimate objects. The affected animals were treated effectively with diazepam @ 1 mg per kg intravenously once in 8 to 10 hours for two days. There were no change in serum concentrations of ALT, AST, BUN, Creatinine, calcium, magnesium, phosphorus except hyperglycemia. The results of this study demonstrated the toxicity of F. tsjahela leaves in cattle and its successful treatment with diazepam at the dose of 1 mg/kg, IV.

Keywords: Ficus tsjahela, Cattle, Neurotoxicity, Diazepam