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## Evaluating the efficacy of homeopathic drug treatment in canine distemper: Associated encephalitis

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### Abstract

The present study was conducted during the period from February to September, 2024 at the Department of Veterinary Medicine, College of Veterinary Science, Rajendranagar, Hyderabad, to evaluate the efficacy of *Cicuta virosa* a homeopathic drug on alleviating clinical signs and haemato-biochemical parameters in dogs with canine distemper (CD)-induced encephalitis. Twelve dogs of various age groups, confirmed with CD-associated neurological involvement, were randomly assigned into two treatment groups (n = 6 per group). Group I received oral supplementation of *Cicuta virosa* 30C drops in combination with a conventional treatment protocol, while Group II was treated with the conventional protocol alone. Clinical observations and haemato-biochemical analyses were performed to assess treatment outcomes. Group I showed significantly greater improvement in clinical signs and normalization of haemato-biochemical parameters compared to Group II, with statistical significance at  $p < 0.01$ . The findings indicate that *Cicuta virosa* 30C, when used as an adjunct to standard therapy, may enhance recovery and improve clinical outcomes in dogs suffering from CD-induced encephalitis.

**Keywords:** Canine distemper, encephalitis, haemato biochemistry and treatment

### Introduction

Encephalitis is defined as inflammation of the brain parenchyma, which can result from a variety of infectious and non-infectious causes (Arulselvam *et al.*, 2022). Clinically, encephalitis often characterized by a range of neurological signs, including convulsions, nystagmus, depression, head and neck deviation, circling, incoordination, photophobia, hypersalivation, muscle tremors, ataxia, postural abnormalities, complete paralysis, and seizures. While each of these signs can occur in other neurological conditions, their simultaneous presence strongly suggests encephalitic involvement. Canine Distemper, a Virus infection frequently leads to severe neurological complications in affected dogs. The virus replicates in neurons and glial cells, producing lesions in the grey matter and causing demyelination. These pathological changes result in tissue damage and provoke an inflammatory response within the central nervous system, ultimately manifesting as encephalitis. The prognosis for dogs exhibiting the neurological form of canine distemper is generally poor. Although some animals may survive, they often experience long term neurological deficits. Management primarily relies on supportive therapy and symptomatic treatment. Anticonvulsant drugs, such as phenobarbital, are commonly employed to control seizures and other neurological manifestations. However, prolonged use of these medications can lead to adverse effects including lethargy, incoordination, polyphagia, weight gain, and hepatic complications (Geetha and Selvaraju, 2019) [7]. In recent years, interest has grown in the use of natural and alternate vet therapies, including herbal extracts and homeopathic medicines for the management of neurological disorders. Some of these agents have demonstrated promising anticonvulsant and neuro protective properties with relatively fewer side effects (Huang *et al.*, 2020) [10]. Nevertheless, scientific literature on the application of homeopathic treatments specifically targeting neurological signs in canine distemper remains scarce. However, there is a need to further explore their clinical efficacy and potential mechanisms of action. In light of these considerations, the present study was undertaken to evaluate the therapeutic efficacy of the homeopathic remedy *Cicuta virosa* 30C, in combination with conventional therapy, for managing clinical signs and haemato-biochemical alterations in dogs affected by CDV-induced encephalitis.

## 2. Materials and Methods

The present research work was done during the period from February to September, 2024 and following materials and methods were used. The study population consisted of client-owned dogs presented to Department of Veterinary Clinical Complex, College of Veterinary Science, Rajendranagar, Hyderabad with the history of recurrent seizures, neurological signs, and ataxia. These dogs were subjected to detailed neurological examination, anamnesis, and clinical evaluation, and were selected for the study. However, six apparently healthy dogs were also chosen at random as healthy control group. The clinical material collected from both CD affected and apparently healthy dogs were nasal swabs, blood serum samples were collected and analysed using Haematology analyser, biochemical analyser, electro cardiogram, electro encephalogram. Therapeutic agents used in this study were inj. Cefotaxim @ 20 mg/kg, Ondansetron @ 0.2 mg/kg, Mecobalmin syrup, Phenobarbitone @ 4 mg/kg, Ranitidine @ 2 mg/kg and Homeopathic Drug Cicuta @ 5 drops QUID. For data analysis One-way ANOVA was done by using Statistical Package for them Social Sciences (SPSS) version 10. To compare the means, Duncan's multiple comparison test was used, with significance levels set at 5% ( $p < 0.05$ ) and 1% ( $p < 0.01$ ) and the results are presented as mean  $\pm$  standard error.

## 3. Results and Discussion

### 3.1 Therapeutic protocol

Twelve dogs diagnosed with CDE were randomly assigned into two treatment groups (n=6 each). Group I received homeopathic preparation, *Cicuta virosa* 30C drops @ 5drops four times daily, in addition to conventional symptomatic treatment. Whereas, Group II received Phenobarbitone @ 4 mg/kg orally alongside the same conventional treatment. Conventional therapy included Inj. Cefotaxime @ 20 mg/kg i.v or I.m, Inj. Ringers Lactate @ 10 ml/kg i.v, Inj. Ondansetron @ 0.2 mg/kg i.v, Ranitidine @ 2 mg/kg s.c and Syrup Neurokind pet oral. *Cicuta virosa*, traditionally used in the treatment of seizures and neuromuscular disturbances, contains cicutoxin, a compound known to modulate GABAergic neuro transmission and potassium channel conductance (Geetha and Selvaraju, 2019; Madaan and Kumar, 2012) [7, 16]. The homeopathic remedy showed marked improvement in clinical symptoms such as flexor spasms, chorea, and myoclonus, consistent with its reported antiepileptic potential. In contrast, phenobarbitone, a standard antiepileptic drug, acts by enhancing GABA-mediated chloride influx into neurons, thereby suppressing seizure activity (Podell *et al.*, 2015; Bhatti *et al.*, 2015) [20, 21]. However, prolonged administration is often associated with side effects like lethargy, ataxia, and increased appetite (Geetha and Selvaraju, 2019) [7].

### 3.2 Therapeutic efficacy Evaluation

Therapeutic response was monitored over a one-month period based on seizure control. The percentage reduction in seizure frequency in Group I dogs before and after treatment was  $4.18 \pm 2.40$  and  $1.12 \pm 0.06$  episodes/day, respectively and with respect to percentage reduction in seizure duration before and after therapy was reported to be  $3.14 \pm 0.23$  and  $1.41 \pm 0.22$  minutes, respectively. Whereas, the percentage reduction in seizure frequency in Group II

dogs before and after treatment was  $3.80 \pm 1.51$  and  $2.08 \pm 0.03$  episodes/day, respectively and with respect to percentage reduction in seizure duration before and after therapy was reported to be  $2.45 \pm 0.27$  and  $0.55 \pm 0.13$  minutes, respectively.

Though clinical improvement was noticed in both the groups, Group I dogs which received homeopathic medication demonstrated a more substantial reduction in seizure frequency and better overall clinical recovery. The combined use of homeopathy and conventional therapy appeared to enhance therapeutic outcomes, possibly through synergistic effects on neural stabilization and inflammation control. These results are supported by previous research (Geetha and Selvaraju, 2019) [7], documented effective seizure management and improved neurological function in CDV-affected dogs treated with homeo medication, highlights the potential role of homeopathy as an adjunct therapeutic option in the management of canine distemper encephalitis, particularly in cases with prominent neurological involvement.

## 4. Conclusion

From the present study, it could be concluded that, though there was improvement in both the groups of CDE affected dogs, Group I dogs treated with homeopathic drug Cicuta drops showed faster recovery, thus revealed to be more efficacious and as it showed faster and complete improvement in clinical signs, seizures frequency and duration after therapy and therapeutic efficacy was reported to be significant ( $p < 0.05$ ).

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