

FIRST VET CLINICAL PAPER IN INDIA

Medical Cannabis – **Helping animals suffering from Osteoarthritis, Hip Dysplasia,** **Musculoskeletal disorders and Cancer Pain**

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1. **Introduction:-** The learned helplessness that comes from not having any long term solution to reduce pain markers in civilian pets and Force animals is very demoralising. Painkillers like anaesthetics/ opioids / NSAIDs etc are short-term solutions for reducing temporary pain. It has always been a challenge to maintain these drugs for long periods of time for horses/dogs suffering from debilitating diseases like osteoarthritis (OA) , hip dysplasia, musculoskeletal disorders, including distress from radiotherapy/chemotherapy for cancer pain, primarily due to the fact that these painkillers have long term deleterious effects on vital organ systems of the body, and rather than improving the quality of life of the animal, they more often than not, create more complications. This is the challenge a veterinarian faces.

2. **Clinical Trials – first time in India:** This is the first clinical paper on use of medical cannabis in dogs in India. The production of Full Spectrum Cannabis Extract is being done in India under the approval of Ayush, and is being successfully used in human patients, but the use in veterinary cases has not been recorded officially. This is a pioneering paper in India. I present clinical trials on use of Medical Cannabis, after in-depth research from authentic scientific references on use of medical cannabis on laboratory animals like rats and guinea pigs, study on humans for OA and cancer by allopaths and references on use of medical cannabis in humans to improve quality of life. After studying the scientific literature available, a clinical decision was taken to initiate the use of this protocol in dogs suffering from a range of inflammatory conditions causing pain and making normal mobility impossible.

3. **Rationale of Medical Cannabis** : The number one cause of initiation of diseases is inflammation. The endocannabinoid system (ECS), present in nearly all mammals, is activated by secretions from the postsynaptic neurons called eCBs (endocannabinoids) like arachidonoyl ethanolamide, that activate the CB1 and CB2 receptors present in the ECS system thereby having immunomodulatory effects since CB2 receptors are present in immune cells (*Klein et al. 2000*) ; in addition helping in pain relief and inhibition of human neoplastic cell proliferation (*McAllister et al. 2007*). The two parts CBD and THC are required for reduction in the angiogenic factors that are responsible for cancer cell proliferation. This action is dose dependent. (*Vaccini et al. 2005*). It has also been shown that medical cannabis, consisting of THC and CBD, has antioxidant and neuroprotective action by counteracting the action of reactive oxygen species (ROS), thereby protecting nerve supply to vital organs (*Hampson et al. 2003*). It was observed by Mc Allistar et al. 2007 that both CBD and THC are equally important and have an entourage effect ie they are greater than a sum of its parts. Therefore for the clinical cases described in this paper, we have used Full Spectrum Cannabis consisting of both CBD and THC. Micro-dosing of medical cannabis has been practiced for therapeutic results.

4. **Clinical Case Study**: From Jan 2021 to June 2022, clinical use of Full Spectrum Cannabis was done in 4 dogs of Labrador breeds between 6 years to 8 years, suffering from acute mobility issues due to advanced osteoarthritis, hip dysplasia and some early onset geriatric issues. All 4 dogs were in severe pain, and they were not able to get up. They were unable to walk and had to be carried outdoors to attend to nature calls. They were whining and whenever they changed their position on a well cushioned bed, all four dogs cried with pain. All 4 dogs also had unilateral hip dysplasia. Whenever they were made to stand, all four dogs were unable to place weight on one of their hind legs due to hip dysplasia.

Diagnosis for OA and HD was done thorough standard X-Ray examination on dorsoventral orientation. It was seen that OA in all 4 dogs had reached a very advanced stage. The joint margins were flossy and not clearly demarcated. Nearly all major joints of both fore and hind limbs were severely affected. There was left or right HD in all 4 dogs with a

very high level of inflammation due to insufficient acetabular cover to femoral head. During analysis of X ray of the 4 Labradors different degrees of periarticular osteophytosis, subchondral sclerosis, joint swelling and effusion, some joint remodeling, and to some extent joint space narrowing were seen, that pointed to advanced OA (osteoarthritis).

All dogs were immobile by choice and whenever mobility was required to either drink water or urinate, extreme pain was experienced by the dogs and at times they howled with pain. It was a very miserable sight to see these beautiful Labradors (one male and three females) in such a state where their quality of life was effected.

All 4 dogs were started on a NSAID (Carbesia 100mg twice a day orally) but even after a month, the pain markers came down slightly and the howling stopped but the whining continued. Improvement in mobility was slight. Blood tests were done and it indicated stress to liver by elevation of liver enzymes. Two dogs also suffered from gastrointestinal bleeding due to the NSAID and the other two dogs also showed GI symptoms. This protocol was combined with glucosamine, chondroitin with MSM (methylsulphonylmethane) that is a standard treatment plan in veterinary sciences. The pain and distress was of such a high level that it was decided to try Medical Cannabis, as various human and laboratory studies had shown good results.

5. **Dosing:-** Full Spectrum Cannabis extract was obtained under veterinary prescription from Noigra (a registered company based in Noida), and since the weight of all 4 Labradors were nearly the same at around 30 Kgs, they were given the same dose of the medical cannabis.

The Full Spectrum Extract was presented in a 10 ml dark glass bottle with a dropper. All Labradors were administered 4 drops twice a day, orally, after food. The 4 drops were carefully mixed in any kind of edible oil found in the kitchen cabinet and all dogs licked the medicine without any problems. There was absolutely no palatability issues. Thus a total of 8 drops was given to each of the dogs daily.

After just 7 days of this dosing, a significant improvement was seen in the pain markers and the all dogs were able to walk without pain. There

was a marked change in the desire of the dogs to go on outdoor walks. Due to OA, the problem of painful defecation, due to the squatting position to be adopted, was no longer there after 7 days of therapy. All dogs urinated and defecated without pain. They walked without pain.

After 30 days of therapy it was a sight to behold. Now the dogs could maintain a brisk trot for a few minutes and were interested in chasing squirrels and wanted to run behind other stray dogs.

The dogs started behaving like normal healthy dogs. There was a marked improvement in appetite. Their quality of life improved, to the great relief and joy of their pet parents.

A second blood test was taken and it was seen that even after 30 days of use of microdosing of cannabis extract, there was no elevation of liver enzymes.

Therefore a conclusion was arrived at that this is a very effective long term strategy to maintain dogs pain free, reduce inflammation and generally improve the quality of life of dogs afflicted with advanced OA and HD.

- All four dogs were given 8 drops that translates to 0.25ml.
- 0.25 ml has 25 mg of Full Spectrum phytocannabinoids.
- 8 drops has only 10% of CBD and THC
- This means each dog was given a total dose of 5 mg of cannabinoids.
- It can further be stated that if a 30 Kg Labrador dog was given 5 mg then the dose rate is exactly 0.16 mg/kg/body weight.

It can be seen that only a daily dose of 0.16 mg/kg/body weight for 30 days had a marked effect on all 4 dogs suffering from severe pain and chronic mobility issues. There were absolutely no psychotropic effects and only therapeutic results were observed. It can be stated that microdosing at the appropriate dose is the key.

6. **Conclusion:** This is the first clinical study on the use of phytocannabinoids in dogs in India and it has shown encouraging results. The dogs on 0.16 mg/kg/body wt for 30 days showed marked relief from OA and HD pain and inflammation. This has to be used very carefully in dogs as they are more sensitive to effects of THC than humans, therefore careful micro-dosing was done. However it must be remembered that both CBD and THC have an entourage effect, and using only CBD may not be as effective, and presence of both components are very necessary. The quality of life improved. A clinical decision was taken to continue this long term keeping in view the clinical results, and periodic monitoring of blood parameters would be carried out.

It is recommended that veterinary institutions/ colleges/universities may launch further research to further investigate this therapeutic option available to dogs and other animals, so as to improve their quality of life by mitigating their pain and suffering, that is the duty of every veterinarian.

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