

Acupuncture for Epilepsy in Dogs

Chinese physicians have been treating epileptic patients for over two thousand years.¹ Does acupuncture actually work for epilepsy? According to a recent Cochrane Database systematic review of acupuncture for epilepsy, the likelihood is unclear.² The veterinary acupuncture literature contains reports of successful outcomes with acupuncture for epilepsy, but none would meet the Cochrane inclusion criteria.³ A closer look at the Cochrane review reveals that only three small trials met the inclusion criteria. Two of the studies evaluated children in China, and one involved adults in Norway. Although smaller and less methodologically rigorous than the Norwegian study, the Chinese trials both found acupuncture to be significantly beneficial for epilepsy. The Norwegian group found that both real and sham acupuncture treatments reduced seizure frequency, and the sham approach had a surprisingly stronger effect. Rather than negating the benefits of acupuncture, this study may have shown that the points and method of stimulation provided in the sham group were actually superior in their seizure-treating value than those the authors selected for the “real” treatment.

Veterinarians employing acupuncture in their treatment program for dogs differ in how they view the proposed mechanism of action. In general, two widely disparate philosophies exist, with one espousing millennia-old metaphorical processes and the other embracing contemporary biomedical neurophysiologic explanations. Although research supports the notion that acupuncture works by neuromodulation and fails to support the contention that acupuncture works by invisible and metaphysical processes, the urge to resist updating the language and mechanisms remains strong within much of the veterinary acupuncture community.

From the Traditional Chinese Medicine (TCM) standpoint, practitioners often attribute the cause of epilepsy to “internal wind invasion”.⁴ This broad grouping pertains to a slew of disorders characterized by involuntary or abnormal movements such as seizures, tics, tremors, and even includes vestibular problems, coma, and stroke. The metaphor alludes to the movements one sees when wind rattles leaves on trees, causing them to shake erratically or in concert, but certainly involuntarily. The ancient Chinese acupuncturists saw how people or animals experiencing seizures resembled the motions exhibited by leaves in a strong breeze. Internal wind invasions contrast with “external wind” afflictions, in which problem arise from exposure to a windy climate. Patients suffering from external wind invasion are experiencing the equivalent of an upper respiratory illness in biomedical terms, not seizures or tics. Internal wind arises from endogenous causes. From a TCM perspective, etiologies of internal wind invasion include the havoc wreaked by a diseased or otherwise unhappy liver, fever, congenital weakness, poor circulation, blood loss, prolonged frustration, or repeated outbursts of anger.

Veterinary acupuncture causes of epilepsy can be broken into six categories. These include 1) obstruction by wind-phlegm, 2) internal profusion of phlegm-fire, 3) blood stagnation, 4) liver blood deficiency, 5) liver/kidney yin deficiency, and 6) kidney jing deficiency.⁵ These colorful references to climatic factors, bodily fluids, and even the elusive “jing” in Chinese medicine have no direct biomedical equivalents, except for blood stagnation, which refers to poor circulation. Assigning patients to these categories requires assessment of clinical signs coupled with evaluation of the dog’s tongue color and coating and the feel of the pulse. Limitations of this approach include lack of evidential support concerning the diagnostic reliability of tongue and pulse evaluations in both humans, for whom the system originated, and in dogs. Furthermore, the recommended acupuncture point selections between groups are sometimes nearly identical, calling into question whether the TCM pattern differentiations applied to dogs actually make a difference, or if the same collection of points would treat a wide variety of patients with seizures.

In neurobiological terms, the metaphors of “eliminating wind in the head” or “dispersing heat” translate into vagal nerve stimulation and reduction in sympathetic tone. Decades ago, Lee and Clifford, researchers from the Medical College of Ohio, documented autonomic changes in animals following acupuncture, and cited biochemical changes in the central nervous system as responsible for improvements seen in cases of seizures, paresis, and paralysis.⁶

For epilepsy in particular, vagal nerve stimulation and neurotransmitter influences serve as a central thread helping to explain the effects of acupuncture on brain function. Acupuncture points on the body, face, and pelvic limb activate the vagus nerve through reflex actions taking place in centers receiving several converging inputs within the brain stem.⁷ These points appear frequently in epilepsy point formulae. An acupuncture point on the ear known as “Shen Men” has received extensive examination in the veterinary research literature over the past two decades.⁸ Its transposed location from the human auricle varies, but all fall within the zone of the concave surface of the pinna supplied by the auricular branch of the vagus nerve.⁹

A study in rats looking at the effects of ear-point stimulation on neurotransmitter levels found that electroacupuncture reduced epileptiform discharges in the cortex as well as epileptiform behaviors.¹⁰ Electroacupuncture suppressed levels of excitatory neurotransmitters in the hippocampus, whereas levels of the inhibitory neurotransmitters glycine, taurine, and GABA increased. Exogenously supplemented taurine improves the ability of electroacupuncture to protect against seizures in rats with penicillin-induced epilepsy; certain Chinese herbs prescribed for epileptic patients contain high amounts of taurine.¹¹ Electroacupuncture applied to body points in rats with pilocarpine-induced epilepsy improved cognitive deficits and prevented shrinkage of areas within the limbic system of the brain.¹²

Given the anecdotal support for acupuncture in dogs with epilepsy, the rarity of serious adverse side effects, and the incomplete control of seizures sometimes afforded with multiple anti-seizure medications, a trial of four to six acupuncture treatments may provide a reasonable adjunctive treatment option. Acupuncture may augment seizure control in dogs with poorly controlled seizures, or may obviate the requirement for medication in dogs mildly affected.

¹ Kloster R, Larsson PG, Lossius R, et al. The effect of acupuncture in chronic intractable epilepsy. *Seizure*. 1999;8:170-174.

² Cheuk DKL and Wong V. Acupuncture for epilepsy. *Cochrane Database of Systematic Review*. 2006; Issue 2. Art No.: CD005062 DOI: 10.1002/14651858.CD005062.pub2.

³ Panzer RB and Chrisman CL. An auricular acupuncture treatment for idiopathic canine epilepsy: a preliminary report. *American Journal of Chinese Medicine*. 1994;22(1):11-17.

⁴ Maciocia G. *The Foundations of Chinese Medicine. A comprehensive text for acupuncturists and herbalists*. 2nd edition. Philadelphia: Churchill Livingstone, 2005. P. 386.

⁵ Xie H and Preast V (eds). *Xie's Veterinary Acupuncture*. Ames: Blackwell Publishing, 2007. Pp. 263-265.

⁶ Clifford DH and Lee MO. Trends in acupuncture research – 2. Acupuncture and the autonomic nervous system. *Veterinary Medicine – Small Animal Clinician*. 1979; January: 35-40.

⁷ Cakmak YO. Epilepsy, electroacupuncture and the nucleus of the solitary tract. *Acupuncture in Medicine*. 2006;24(4):164-168.

⁸ Van Niekerk J. The use of acupuncture in canine epilepsy. *Journal of the South African Veterinary Association*. 1988;59(1):5.

⁹ Still J. Role of the nervous system in the appearance of the ear acupuncture points in the dog. *Acta Vet Brno*. 1986;55:5-64.

¹⁰ Shu J, Liu R-Y, and Huang X-F. The effects of ear-point stimulation on the contents of somatostatin and amino acid neurotransmitters in brain of rat with experimental seizure. *Acupuncture & Electro-Therapeutics Res., Int J*. 2004;29:43-51.

¹¹ LiQ, Guo J-C, Jin H-B, et al. Involvement of taurine in penicillin-induced epilepsy and anti-convulsion of acupuncture: a preliminary report. *Acupuncture & Electro-therapeutics Res., Int J*. 2005;30:1-14.

¹² Guilherme dos Santos J, Tabosa A, Hoffmann Martins do Monte F, et al. Electroacupuncture prevents cognitive deficits in pilocarpine-epileptic rats. *Neuroscience Letters*. 2005;384:234-238.