

HEARTWORM PREVENTION STUDY

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ABBREVIATION

HWD Heartworm Disease

Abstract

Heartworm preventive is widely recommended for prevention of heartworm disease (HWD), even in areas of low HWD rates. Drug resistance, side effects and environmental concerns support the testing of safe and effective alternatives. From 1999–2014, a study was undertaken in 20 dogs to determine the safety and efficacy of 2 herbal medicines, Wormwood (*Artemisia absinthium*) and Black Walnut (*Juglans nigra*) in the prevention of HWD. None of the dogs in the study became positive for HWD, and none of the dogs experienced side effects from the herbal protocol.

Introduction

HWD in canines is of great concern in the United States. The disease can lead to not only long term cardiac and pulmonary disease but also fatalities directly from the parasite or from the pharmaceutical treatment for the disease. In the southern part of the United States, not only is the incidence very high with over 50 cases per clinic per year, but also there is a disturbing rate of drug resistance, potential for secondary drug induced diseases, and environmental concerns over the use of these drugs (1–4). High levels of ivermectin are recovered in the feces of treated animals, a concern because this compound has strong effects on soil populations of microbes.

In Western New York State, according to statistics from the American Heartworm Society, 5–25 cases are reported per clinic per year (5). Despite the modest to moderate incidence of reported cases of HWD in Western New York, the average veterinary clinic strongly insists on yearly administration of pharmaceutical

heartworm prevention. This seems to be excessive in the face of environmental concerns and the declining state of health in our average canine.

Over the past 21 years, The Holistic Center for Veterinary Care in Colden, NY, has used herbal medicines for the prevention of HWD for those dogs with serious chronic disease. These diseases include cancers, auto-immune diseases, rheumatoid arthritis, osteoarthritis, chronic active hepatitis, chronic active pancreatic diseases, chronic skin and ear issues, and severe mental disturbances. Herbal medicines are also used in animals that have a past reported sensitivity to drugs or vaccines, or in any animal with suspected defects in the P-glycoprotein gene (MDR1). All of these dogs have poorly functioning elimination organs and cannot tolerate any toxic load; they are too ill to receive any chemical agents including prescription heartworm preventatives.

All dogs on this protocol have remained heartworm negative as verified by antigen testing or blood filtration. This involves an estimated 200 dogs per summer for over 21 summers; over 4,200 potential summers of exposure.

The herbal medicines Wormwood (*Artemisia absinthium*, and Black Walnut (*Juglans nigra*) were used as the HWD preventives in this report. Both have a recorded traditional use as a vermicide (6).

Methods and Materials

All owners were consulted as to the risks and benefits of

conventional heartworm prevention as compared to the risks and benefits of herbal prevention. All owners were aware of the importance of mosquito avoidance. All of the dogs were felt to have either a genetic predisposition to chronic disease or current chronic disease. It was felt that any aggravation to this deeper chronic disease was a greater risk than the risk of heartworm. The records at The Holistic Center for Veterinary Care from 1999 to 2014 were reviewed. To control diet and handling variables, 20 dogs from one training kennel, Canine Helpers, in Lockport, N.Y., were represented in this pilot study. Breeds included Labrador Retriever (n=5), Collie (n=4), Golden Retrievers (n=3), German Shepherd Dog (n=2), mixed breed (n=2), and one each of Standard Poodle, Beagle, Whippet, and Norwegian Elkhound.

All dogs weighing over 15 kg received 5 drops of a 1:1 fluid extract of Black Walnut, (b) daily and one drop of a 1:1 fluid extract of Wormwood (c) daily when the average daily temperature was over 55°F (12.8°C) for the duration of their lives. Those weighing less than 15 kg received 3 drops of Black Walnut daily and drop of Wormwood every other day when the average daily temperature was over 55°F (12.8°C) for the duration of their lives.

If the owners encountered a large number of mosquitoes, they were also instructed to give one dose of Heartworm nosode 30C potency (d).

Monitoring for HWD was done every spring between March 1 and May 1, using either blood filter test from 1999–2006, or antigen testing from 2007–2014 (a).

Results

All dogs in this retrospective pilot study remained negative for HWD. (Table 1) No adverse side effects were encountered. The dogs continue to be monitored yearly until death or relocation out of the practice area.

TABLE 1

Males-castrated-dates on herbal-breed	Females –spayed
1. 2002-2014-Golden Retriever	1. 2010-2014-Labra-doodle
2. 1999-2001-Labrador Retriever	2. 2006-2011-Beagle
3. 2002-2005- Labrador Retriever	3. 2007-2011-Whippet
4. 2007-2010- Labrador Retriever	4. 2013-2014-mixed breed
5. 2000-2014- Labrador Retriever	5. 2010-2014-Collie
6. 2010-2014-Standard Poodle	6. 2011-2014- Collie
7. 2010-2014- Golden Retriever	7. 2005-2014- Labrador Retriever
8. 2000-2010-Collie	8. 2010-2014- Golden Retriever
9. 2010-2014-Collie	9. 2013-2014-German Shepherd
10. 2007-2009- Norwegian Elkhound	10. 2000-2013-GermanShepherd

Discussion

Western New York has a low to moderate prevalence of HWD. The use of low doses of Black Walnut and Wormwood to prevent HWD was safe and effective in the 20 dogs in this study.

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In western NY, the routine standard of care is the use of year-round ivermectin for the prevention of HWD. Ivermectin (22, 23-dihydroavermectin B1a + 22, 23-dihydroavermectin B1b) is a broad-spectrum antiparasitic drug in the avermectin family. It is derived from the bacterium *Streptomyces avermitilis*. It kills by interfering with the nervous system and muscle function as it binds and activates glutamate-gated chloride channels.

Common side effects from ivermectin seen in healthy dogs include vomiting, diarrhea, lethargy and lack of appetite. The most serious side-effect is neurotoxicity from potentiation of inhibitory GABAergic synapses. The use of ivermectin is contraindicated in dogs with pre-existing liver or renal disease. Elevation in liver enzymes, glomerular damage, prolonged prothrombin times, leukopenia and anemia have all been reported post-ivermectin use (7, 8). In dogs with poorly functioning de-toxification organs, the author has seen a strong correlation with the development of hepatic micro-vascular shunts and the development of chronic hepatobiliary disease.

Washington State University has identified a mutation of the multi-drug resistant gene (MDR1) in certain dog breeds which can cause serious adverse reactions to ivermectin. The gene in question encodes a particular protein responsible for flushing toxins, including many drugs, from the brain. Dogs with the MDR1 mutation are not able to efficiently pump toxins out of the brain, which can result in a serious and even fatal neurologic condition (9). In those dogs, ivermectin can cause a fatal side effect characterized by symptoms of shock including vomiting, hypothermia and depression.

Ivermectin has also been associated with a central nervous system event in some dogs which leads to loss of coordination, seizures, and in some cases, death.

The risk of ivermectin-induced illness in dogs with pre-existing illness would appear significant.

There have been questions as to how such a low dose of an herbal product can have such a strong anthelmintic effect. The Physiomedicalists felt that this drop dose acts as a stimulant to the body, enabling the body's immune system to attack and kill these parasites; in other words the herbs are not being used as a drug, they are acting as an immune catalyst. Physiomedicalism was a medical philosophy founded on the idea of vital force or energy inherent in the living matter of tissue cells, whose aggregate expression in health and disease are the functional activities of the organism whose inherent tendency is integrative and constructive, resistive, eliminative and reconstructive to inimical invasions and disease causations (10).

Additionally these herbs have other immune supportive actions. Black Walnut is a traditional remedy in the South for hypothyroidism. It is possible that these other immune supportive effects of these herbs are allowing the immune system to be fully functional.

More recent research has found that adult heartworms need a supportive spirochete symbiosis for its vitality. It is hypothetically possible that these herbs are able to de-vitalize these spirochetes thereby weakening the heartworm.

This study illustrated that in a modest to moderate heartworm region; it is very possible for dogs to remain heartworm free with no pharmaceutical drug usage.

Further studies are needed; but the use of these herbs as a safer and effective heartworm preventive holds much promise. 🌿

ENDNOTES

- a. Witness HW: Rapid Immuno Migration test, Pfizer, Exton, PA 19341, USA
- b. Black Walnut, Green-Hull extract; New Action Products, Orchard Park, NY 14127
- c. Wormwood (ajenjo); New Action Products, Orchard Park, NY 14127
- d. Heartworm 30C, Washington Homeopathic Products, Berkeley Springs, WV,
- e. Evolv; Wondercide, Austin, Texas

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