HEARTWORM

It's getting warmer outside — time for sellers of heartworm medications to start scaring you to death.Television and print ads, which used to push meds only during warm summer months, now urge you to keep your dog on medication year round. The question is: why the change?

Drs. David Knight and James Lok of the University of Pennsylvania School of Veterinary Medicine, addressing recommendations for year round meds, warned: "The practice of some veterinarians to continuously prescribe monthly chemoprophylaxis exaggerates the actual risk of heartworm transmission in most parts of the country and unnecessarily increases the cost of protection to their clients."

So, is the change to year round meds all about money? Or is there more to this story?

Heartworm "prevention" is a major health decision for pet parents and multi-billion dollar Big Business for drug companies, veterinarians, testing laboratories and on-line sellers of medication. When health intersects money, there's a lot of room for conflict of interest. Only by understanding the business aspects and the truth about heartworm transmission can you make an informed decision about if, how and when to protect your dog with commercial products.

While everyone agrees that heartworm infestations can be life-threatening, infestation is far from inevitable nor is it the immutable death sentence advertisers would have you believe. (Otherwise, all dogs and cats not on meds would die of infestation. But they don't.)

Every holistic vet I've consulted had concerns about the long-term safety of heartworm medications. Well-known vet, author and columnist Martin Goldstein wrote in his wonderful book The Nature of Animal Healing that he sees heartworms as less epidemic than the "disease-causing toxicity" of heartworm medicine.

Dr. Jeff Levy, vet and homeopath, concluded "that it was not the heartworms that caused disease, but the other factors that damaged the dogs' health to the point that they could no longer compensate for an otherwise tolerable parasite load." Those factors include, "… being vaccinated yearly, eating commercial dog food, and getting suppressive drug treatment for other symptoms…."

Heartworm meds do not, by the way, prevent heartworms. They are poisons that kill heartworm larvae (called microfilariae) contracted during the previous 30-45 days (and maybe longer due to what is call the Reach Back Effect).

The heartworm industry authority, The American Heartworm Society (and their cat heartworm site) offers a wealth of information. Their website is a public service but also a marketing tool aimed at buyers and resellers of heartworm meds. Sponsors of this website are a Who's Who of drug companies. Fort Dodge Animal Health (Wyeth), Merial and Pfizer are "Platinum Sponsors." Bayer merits Silver. Novartis, Schering-Plough, Virbac and Eli Lilly get Bronze. Most of these companies have sales reps that regularly call on vets and show them how to sell you heartworm meds. With any purchase of any drug, we recommend you ask for information regarding possible adverse effects, the necessity for taking this drug and available alternatives.

How Heartworms Infect Dogs: It's Not Easy!

Well, now that we've looked behind the scenes of the heartworm industry, let's take a look at how the heartworms themselves (called Dirofilaria immitis) do business. Seven steps must be completed to give your dog a dangerous heartworm infestation:

Step 1: To infect your dog, you need mosquitoes (so you need warm temperatures and standing water). More specifically, you need a hungry female mosquito of an appropriate species. Female mosquitoes act as airborne incubators for premature baby heartworms (called microfilariae). Without the proper mosquito, dogs can't get heartworms. Period. That means dogs can't "catch" heartworms from other dogs or mammals or from dog park lawns. Puppies can't "catch" heartworms from their mothers and moms can't pass heartworm immunity to pups.

Step 2: Our hungry mosquito needs access to a dog already infected with sexually mature male and female heartworms that have produced babies.

Step 3: The heartworm babies must be at the L1 stage of development when the mosquito bites the dog and withdraws blood.

Step 4: Ten to fourteen days later — if the temperature is right –the microfilariae mature inside the mosquito to the infective L3 stage then migrate to the mosquito's mouth. (Yum!)

Step 5: Madame mosquito transmits the L3's to your dog's skin with a bite. Then, if all conditions are right, the L3's develop in the skin for three to four months (to the L5 stage) before making their way into your dog's blood. But your dog still isn't doomed.

Step 6: Only if the dog's immune system doesn't rid the dog of these worms do the heartworms develop to adulthood.

Step 7: It takes approximately six months for the surviving larvae to achieve maturity. At this point, the adult heartworms may produce babies if there are both males and females, but the kiddies will die unless a mosquito carrying L3's intervenes. Otherwise, the adults will live several years then die.

In summation, a particular species of mosquito must bite a dog infected with circulating L1 heartworm babies, must carry the babies to stage L3 and then must bite your dog . The adult worms and babies will eventually die off in the dog unless your dog is bitten again! Oh, and one more thing.

Heartworms Development Requires Sustained Day & Night Weather Above 57 F

In Step 4 above I wrote that heartworm larvae develop "if the temperature is right."

The University of Pennsylvania vet school (in a study funded by Merial) found: "Development in the mosquito is temperature dependent, requiring approximately two weeks of temperature at or above 27C (80F). Below a threshold temperature of 14C (57F), development cannot occur, and the cycle will be halted. As a result, transmission is limited to warm months, and duration of the transmission season varies geographically."

Knight and Lok agree: "In regions where average daily temperatures remain at or below about 62F (17C) from late fall to early spring, insufficient heat accumulates to allow maturation of

infective larvae in the intermediate host [the mosquito], precluding transmission of the parasite."

The Washington State University vet school reports that laboratory studies show that maturation of the worms requires "the equivalent of a steady 24-hour daily temperature in excess of 64°F (18°C) for approximately one month." In other words, it has to be warm day AND night or development is retarded even if the average temperature is sufficiently warm. They add, that at 80° F, "10 to 14 days are required for development of microfilariae to the infective stage."

Jerold Theis, DVM, PhD, says, "If the mean monthly temperature is only a few degrees above 14 degrees centigrade [57 degrees F] it can take so many days for infective larvae to develop that the likelihood of the female mosquito living that long is remote."

I have never found this temperature-dependent information on a website promoting "preventatives," but only in more scholarly works not easily accessed by the public. There is, as far as I can find, only one mention of temperature on the Heartworm Society (on the canine heartworm page) and none in the Merck/Merial Veterinary Manual site or Merial's heartworm video — even though Merial funded the UPenn study.

The Society also reports, "Factors affecting the level of risk of heartworm infection include the climate (temperature, humidity), the species of mosquitoes in the area, presence of mosquito breeding areas and presence of animal reservoirs (such as infected dogs or coyotes)."

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