Even with the advent of effective preventative treatments, fast and accurate diagnostics, and potent adulticides, heartworm disease continues to challenge veterinarians. Everyone is familiar with the outdoor dog that lives in a heartworm-endemic area, is not on a preventative, and comes in coughing. Radiographs reveal changes typical of heartworm infestation. Pet owners can be counseled on complications and risks and are delighted when, with the risk period over, their pets can return to normal exercise.

This scenario is somewhat predictable and has led to a classification scheme for heartworm disease. This scheme is designed to guide the approach to treatment and predict likely complications.

- **Class I:** Asymptomatic to mild; clinical signs are absent or mild.
- **Class II:** Moderate; signs are absent or mild, but radiographic changes are seen.
- **Class III:** Clinical signs may be severe and persistent. Severe radiologic changes are seen and high antigen levels are present.
- **Class IV:** Caval syndrome.

The importance of knowing that a patient has adult heartworms is not a matter of debate. Even if only a small number of worms are present, it is important to know that they are there, so the most sensitive tests should be used. Studies have shown that the ELISA SNAP assay is currently the most sensitive test for detecting the lowest worm burdens. Heartworms may cause problems either because they induce reactions that are damaging to lung tissue or because their death induces a relatively severe response that manifests clinically. The likelihood of these reactions increases as the number of worms increases or as the size of the patient decreases. The death of a single worm is more likely to contribute to the potential for complications with this “slow-kill” approach and include worm burden and activity level of the patient. The timing of worm death is unpredictable with this alternative approach, and an active dog can show deleterious consequences of this even if the number of worms dying is small.

The safety of adulticide administration has led to interest in this alternative approach, but the development of melarsomine (Immiticide, Merial), the only FDA-approved adulticidal agent, has given us additional treatment options because it has a dose-dependent “kill” profile. Two protocols were developed to take advantage of this:

- **Standard protocol:** 2.5 mg/kg twice, 24 hours apart, followed by a second course 4 months later if needed.
- **Alternative protocol:** A single injection of 2.5 mg/kg followed 1 month later by the two injections of 2.5 mg/kg twice, 24 hours apart.

With the alternative protocol, approximately 30% of the worms will be killed by the first dose, and the 1-month “rest” allows the lungs time to recover prior to the second dosing. Disadvantages are that the dog has to be rested for 2 months, 1 month after each injection cycle, and the additional drug expense.

In conclusion, it is important to know the heartworm status of your patients so an informed approach to therapy can be devised. Approaches will differ, depending on such factors as worm burden, activity level, and duration of infection.

**References**

