Researchers Explore Reasons for 'Early' Return of Small Strongyles Following Treatment

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Research has shown that small strongyle eggs, apparent in feces, are returning sooner after treating horses with ivermectin (a commonly administered broad-spectrum anti-parasitic drug) than when the drug was first marketed.

According to parasitologist Eugene Lyons, PhD, and colleagues from the department of veterinary science at the University of Kentucky's Gluck Equine Research Center, this trend has been reported in many parts of the world. Researchers continue to study the extent and possible reasons for this "early" return.

Field studies performed in 2007 on horses on one farm revealed that parasite eggs in study horses' manure (eggs per gram, or EPGs) returned about twice as quickly after treatment with ivermectin compared to when the drug was first commercially available in the early 1980s. (Read more.)

In follow-up tests performed this year, Lyons evaluated the effect of ivermectin at the therapeutic dose rate of (200 µg/kg) in four yearling horses born and raised together on a farm in Central Kentucky. He wanted to determine the reason for the egg counts' swift return.

"In feces passed within six days post-treatment, 13 different species of adult small strongyles were identified," summarized Lyons. "On Day 6 post-treatment, almost 100% removal of adult small strongyles was noted; however, removal of fourth stage (L4) small strongyles was only 36-80%."

In the one horse assessed on Day 25 post-treatment, adult small strongyles were plentiful.

According to Lyons, "This suggests that the adult small strongyles found in the horse evaluated on Day 25 post-treatment are a result of the incomplete removal of the immature L4s by ivermectin, allowing these immature parasites to develop into adults and begin laying eggs by Day 25 post-treatment."

The rate of maturation of the L4s into egg-laying adult worms is faster than when ivermectin was first marketed. In effect, this means that the life cycle of the parasite has shortened.

While these results might appear outwardly discouraging, Lyons reminds the veterinary community that together, his results show that ivermectin in still highly effective against adult small strongyles and partially effective against the L4s.

Lyons noted that researchers need to conduct similar studies on other farms to determine if the same phenomenon occurs throughout the horse industry. Research in this field of study is important, considering that small strongyles have shown resistance to most commercial deworming products and because no new products effective against small strongyles are forthcoming on the market. Studies in Lyons' laboratory are ongoing.

The study, "Probable reason why small strongyle EPG counts are returning 'early' after ivermectin treatment of horses on a farm in Central Kentucky," is scheduled to be published in an upcoming edition of the journal *Parasitology Research*. The abstract is currently available on PubMed.

Readers are cautioned to seek the advice of a qualified veterinarian before proceeding with any diagnosis, treatment, or therapy.