

## Comparative Study of Two Therapies Pharmacological Based a Ivermectin and Febendazol by *Strongyles* Control Intestinal in Thoroughbreds Horses

Sneiry Pérez-Álvarez<sup>1</sup>, Keysamir Rojas-Mujica<sup>1</sup>, Héctor Bello<sup>3</sup>, Diana Villoria<sup>3</sup> and Abelardo Morales<sup>2,3\*</sup>

<sup>1</sup>School of Pharmacy University of Santa María, Venezuela

<sup>2</sup>Department of Pathology Faculty of Veterinary Science Central University of Venezuela, Venezuela

<sup>3</sup>Racetrack Animal Health Division "La Rinconada" Caracas-Venezuela, Venezuela

### Abstract

The aim of this study was to comparative of two therapies pharmacological based ivermectin and febendazol by *Strongyles* control intestinal in Thoroughbreds horses. Were study 110 horses all of 2 years old (55 Stallion and 55 Mares), in the Racetrack "La Rinconada" Caracas-Venezuela. A stool test was performed prior to treatment to each

horse. Group 1: 50 horses were evaluated before treatment, using a stool test, then was given Ivermectin (0.2 mg/kg) 1% 7 ml, with reassessment intramuscularly coprological at 7 days. Group 2: 50 horses were evaluated before treatment, using a stool test, Febendazole was later administered (5 mg/kg) 18.8% oral paste 12 g. With reassessment coprological at 7 days. Group 3: 10 equines those not administered drug therapy, alone parasite burden was assessed using a fecal examination by Willis test. Anthelmintics effectiveness was conducted by counting fecal drug-treated group and the untreated control group. The results Group1 with Ivermectin 2.38 EPG showed pre-treatment and post treatment 7 days EPG 0.48. The group2 with Febendazole obtained 2.66 EPG and 7 days post treatment was obtained 0.06 EPG. Group 3 without medication present the following day 1.9 EPG value and then at 7 days 2 EPG. Comparing the effectiveness of both drug treatment and febendazole ivermectin antiparasitic indicate that febendazole base is more effective against the equine intestinal *Strongylus*, taking a percentage of 97% in comparison with specifically macrocyclic lactones which Ivermectin obtained a much lower drug efficacy throwing only 76%.

**Keywords:** Strongyles; Ivermectin; Febendazole; Horses

### Introduction

*Strongyles* are the most common parasites of the horse. We consider two large groups, large and small [1]. In horses, small *Strongyles* are Cyathostominae subfamily or small *Strongyles*, including 8 nematode genus. Large *Strongyles* are common parasites of the large intestine, where the larvae migrate in complex ways throughout the body. Among the three major species of large *Strongyles* (*Strongylus vulgaris*), *S. edentatus*, *S. equinus*, the *S. vulgaris* is the most common pathogen [1]. The aetiology is small *Strongylus* taken for ingestion of L3 parasitic cysts that form in the colon causing chronic enteritis. While large *Strongylus* involves ingestion of L3 larvae and its effect is also hematófago is capable of extra-intestinal migration evolve verminous arteritis. Clinical signs: Colic, diarrhea, weight loss, Anemia, poor performance, shaggy hair and mortality. The classic method is stool test: Stool, molecular biology (PCR), necropsy, histopathology. Treatment is a base of Benzimidazoles, Macrocyclic Lactones, including combined ivermectin with pyrantel and ivermectin in combination with praziquantel. The aims of this study was to comparative of two therapies pharmacological based a ivermectin and febendazol by *Strongyles* control intestinal in Thoroughbreds horses.

### Materials and Methods

We studied 110 horses all of 2 years old (55 Stallion and 55 Mares), in the Racetrack "La Rinconada" Caracas-Venezuela. All the same low feeding and management conditions over a period of 45 days. A stool test was performed prior to treatment to each horse.

Group 1: 50 horses were evaluated before treatment, using a stool test, then was given Ivermectin (0.2mg/kg) (Topp ivermectin, injectable solution) 1% 7 ml, with reassessment intramuscularly coprological at 7 days.

Group 2: 50 horses were evaluated before treatment, using a stool test, Febendazole was later administered (5 mg/kg) (Gold \* PLUS Calox) 18.8% oral paste 12 g, with reassessment coprological at 7 days.

Group 3: 10 equines those not administered drug therapy, alone parasite burden was assessed using a fecal examination by Willis. Anthelmintics effectiveness was conducted by counting fecal drug-treated group and the untreated control group.

### Results

Group1 with Ivermectin 2.38 EPG showed pre-treatment and post-treatment 7 days EPG 0.48. The group2 with Febendazole obtained 2.66 EPG and 7 days post treatment was obtained 0.06 EPG. Group 3 without medication present the following day 1.9 EPG value and then at 7 days 2 EPG.

Comparing the effectiveness of both drug treatment and febendazole ivermectin antiparasitic indicate that febendazole base is more effective against the equine intestinal *Strongylus*, taking a percentage of 97% in comparison with specifically macrocyclic lactones

**\*Corresponding author:** Abelardo Morales, Department of Pathology Faculty of Veterinary Science Central University of Venezuela, Venezuela, E-mail: [aamorales13@gmail.com](mailto:aamorales13@gmail.com)

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which Ivermectin obtained a much lower drug efficacy throwing only 76%. In the treated groups compared with the control group there was a notable decrease in intestinal *Strongyles* in both treatments, as it resulted in a decrease of the parasitic load, indicating a significant therapeutic effect on *Strongyles*. The categorization established possible to establish the degree of infestation and therapeutic response. Predominance was observed at the beginning of infestation post-treatment grade 2 and grade 0 and grade 1, respectively.

## Discussion

The prevalence of *Strongylus* infestations have been reported worldwide and has been a major problem for the health of the horse, as suggested by more recent studies [2-7]. In comparison with our studies in both the elimination of infestations treatment was higher than 75%, however fenbendazole therapy was approximately 97%. This study did not consider post-therapeutic recurrence. Integrated control strategies of *Strongylus* are currently based in Anthelmintics (Strategic selective treatment): Conventional: Benzimidazoles (1960): pyrantel pamoate, febantel,

Fenbendazol. Nematicides (coupled tubulins/block digestive enzymes). Macrocytic lactones (abamectin, ivermectin, moxidectin), including combined ivermectin with pyrantel (Tetrahydropyrimidine) and ivermectin in combination with praziquantel (pyrazinoisoquinolin derivative). Ivermectin: glutamate/chloride channel. Praziquantel: calcium ions.

The key to managing anthelmintic resistance is to keep parasites shelters and this concept is discussed in relation to treatment strategies, drug rotations and pasture management. Focus and surveillance of parasitic loads and regular testing of drug efficacy.

Biological and statistical considerations in evaluating drug efficacy in equine parasites using data *Strongyle* Faecal Egg Count [8]. Management Measures: Animal Management (grass), food, rotation pastures (susceptible/resistant). Monitoring host parasite load/environment. Deworming/paddocks download. General hygiene in very important; disinfections facilities. Biological control: an alternative method for reducing parasites by natural predators; *D. flagrans*: 106 chlamydo spores/kg/day mixed with food for 5 months [9] (73.5% reduction ( $p < 0.05$ ) last month, on the grass was not reflecting in a decrease of parasite infection for 5 months. Immunoprophylaxis: Vaccination against *Strongylus vulgaris* in ponies: comparison of the humoral and cytokine responses of vaccinates and nonvaccinates [10]. Experimental immunization of ponies with *Strongylus vulgaris* radiation-attenuated larvae or crude soluble somatic extracts from larval or adult stages. Monahan, et al. [11], Irradiated larval vaccination of ponies against *Strongylus vulgaris*. Klei et al. [12] Gamma irradiation (70,100 and 130) of larvae (L3). Homogenized soluble (Oral / IM) 6 weeks a 91% protection. Selection: The selection and crosses with resistant animals may promote resistance to infestation with *Strongylus* sp. In conclusion the results obtained indicate that Fenbendazole therapy is much more effective against intestinal *Strongylus* sp. therapeutics ivermectin in horses Thoroughbreds [13,14].

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