



SolPa

SOCIETÀ ITALIANA DI PARASSITOLOGIA

XXVIII CONGRESSO NAZIONALE

ROMA, 24-27 Giugno 2014



LETTURE
RELAZIONI DEI SIMPOSI
COMUNICAZIONI SCIENTIFICHE

Casa dell'Aviatore, Viale dell'Università, 20 - Roma

O04.10

COMPARATIVE EFFICACY OF TWO PYRANTEL ORAL FORMULATIONS (PASTE AND GRANULATE) IN DONKEYS NATURALLY INFECTED WITH INTESTINAL STRONGYLIDAE

Veneziano V.*^[1], Smaldone G.^[1], Mariani U.^[2], Neola B.^[1], Roncoroni C.^[3], Gokbulut C.^[4]

^[1]Department of Veterinary Medicine and Animal Production, University of Naples "Federico II", Italy ~ Napoli ~ Italy, ^[2]Istituto Zooprofilattico Sperimentale del Mezzogiorno, Italy ~ Portici ~ Italy, ^[3]Istituto Zooprofilattico Sperimentale Lazio e Toscana, Italy ~ Roma ~ Italy, ^[4]Department of Medical Pharmacology, Balikesir University Turkey ~ Balikesir ~ Turkey

INTRODUCTION:

Donkeys and horses share many internal parasites including the nematodes Strongylidae. Pyrantel (PYR) is an imidazothiazole derivative, highly effective (95%-97%) against small strongyles, *Parascaris equorum* and *Strongylus vulgaris*, and has moderate activity against *Strongylus edentatus* (70%) and *Oxyuris equi* (65%) (Gokbulut et al., 2001, J.Vet. Pharmacol. Therap., 24:77-79). There is a paucity of data available on the efficacy of anthelmintics used in donkeys. Therapeutics, such as antiparasitic compounds, are often administered to donkeys based on dosage and intervals recommended for horses and cattle, because very few drugs have donkey-specific label indications (Grosenbaugh et al. 2011, Equine Vet Educ, 23:523-530). PYR pamoate oral formulations currently available in Italy for horses are paste 38% and granulate 20%. In the present study the comparative anthelmintic efficacy of 2 different oral formulations (paste and granulate) of PYR are reported in donkeys.

MATERIALS AND METHODS:

The trial was conducted on a donkey farm in southern Italy. Faecal examinations (individual Faecal Egg Counts and pooled coproculture) performed before the beginning of the study showed high prevalence of intestinal nematodes (*Cyathostomum* spp., *Strongylus vulgaris*) in all donkeys. Twenty-one female crossbred donkeys were selected on the basis of faecal egg counts (FEC). The animals were allocated to 3 groups (n: 7 donkeys). One group was untreated control (C-group) and the PYR P-group and PYR G-group were treated with Strike paste 38% and Strike granulate 20%, both administered orally at the manufacturer's recommended horse dose of 6.94 mg/kg bodyweight. FECs were performed on each study animal before the start of the trial (day -3), at days 7, 14, 21, 28, 35, 42, 56 after treatment. FECs were determined using a modified McMaster technique (sensitivity 10 eggs per gram - EPG). On each sampling day, faecal samples were incubated at 27 °C for 7-10 days for larval identification. To determine the efficacy of PYR against intestinal strongyles following the WAAVP guidelines (Duncan et al., 2002, Vet Parasitol, 103:1-18) at each faecal sampling time, arithmetic mean of EPG was calculated and the percent efficacy (%) of each animal was calculated in terms of FEC Reduction (FECR) according to the formula:

$$\text{FECR (\%)} = \frac{\text{Mean EPG Control Group} - \text{Mean EPG Treated Group}}{\text{Mean EPG Control Group}} \times 100$$

RESULTS:

No adverse reactions to treatments were detected. The results of FECs in the C-group and PYR groups are shown in the following table.

Day	C group		PYR Paste group		FECR (%)	P value	PYR Granulate group		FECR (%)	P value
	EPG AM	EPG Range	EPG AM	EPG Range			EPG AM	EPG Range		
-3	1.104	450-1.470	1.061	160-1.770	-	0.8636	1.139	170-2.440	-	0.9220
7	849	450-1.170	14	0-30	98.3	0.0000	24	0-80	97.1	0.0000
14	936	500-1.340	14	0-30	98.5	0.0000	26	0-10	97.3	0.0000
21	1.036	140-1.450	19	0-30	98.2	0.0001	39	0-110	96.3	0.0001
28	1.334	170-2.030	46	0-110	96.6	0.0002	49	20-80	96.4	0.0002
35	1.163	610-2.000	213	20-740	81.7	0.0003	124	40-290	89.3	0.0001
42	854	90-1.370	520	40-1.790	39.1	0.2657	303	70-540	64.5	0.0095
49	823	90-1.680	616	10-1.950	25.2	0.3055	533	150-1.090	35.2	0.1925
56	663	210-1.130	737	80-1.410	-11.2	0.7371	651	240-1.410	1.7	0.9536

* Parametric t-test (PYR-groups vs C-group) P < 0.001

Pretreatment EPG were not significantly different ($P > 0.1$) between groups. Post-treatment EPG for both PYR treatment groups were significantly different ($P < 0.001$) from the control group until day 35. Following treatments the PYR formulations were efficient (>90% efficacy) until day 28.

In all studied donkeys, coprocultures performed at day -3 revealed the presence of *Cyathostomum* spp., *S. vulgaris*. Faecal cultures performed at different days from C-group confirmed the presence of the same genera. Coprocultures from treated animals revealed the presence of few larvae of *Cyathostomum* spp..

CONCLUSIONS:

This trial demonstrates that both PYR oral formulations at the manufacturer's recommended horse dose are effective (96-98%) against intestinal strongyles on donkeys. Therapeutic equivalence was demonstrated for PYR oral formulations paste and granulate based on FECR. Therefore similar dosage regimens of PYR could be used for horses or donkeys.

Keywords:

Donkey, Pyrantel, efficacy

