

OUR EXPERIENCE IN CONTROLLING INTESTINAL PARASITES OF DOGS USING COMBINATION OF PRAZIQUANTEL/PYRANTEL PAMOATE & FEBANTEL (DEHINEL® PLUS TABLET)

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Abstract

A steady increase in the number of dogs in urban areas induced contamination public places with dogs faeces and eggs of zoonotic parasites which present a significant health problem from human. In order to solve the problem most effective way is the eradication parasites of dogs. Our survey we conducted in cooperation with several veterinary clinics in Belgrade in 2015. In total, 223 dogs using standard coprology method. In dogs in which they are established parasites are given Dehinel Plus tablet (combination of febantel, pyrantel pamoate and praziquantel) according to the manufacturer's instructions. Except high efficiency to nematode and cestode during this study drug has been shown effective in the treatment of infections with *Giardia intestinalis* so that it can be used for this purpose.

Key words: dogs, parasites, febantel, pyrantel pamoate, praziquantel

INTRODUCTION

Today, the connection between men and dog is very close and we had a permanent increased of number of dogs in cities [21]. Close relationship between men and dog however it has a positive effect for owners may have present a hygienic and ecological problem of urban environment [10,15,20].

In cities green areas and parks are the main place where children play and present areas for recreation of city people [19,22]. Also this are places where dog owners running their pets and places we encounter non-owner dogs - usually former pets whose droppings dirty sidewalks and green areas [3,17,18]. Dog feces in addition to its unpleasant appearance and odor presents an epidemiological risk because it usually contains eggs and oocysts of many zoonotic parasites which dogs were real hosts

This problem wrre present worldwide [4,7,11,23]. If it is known that more than 5% of the contaminated urban areas poses a

serious threat to people's health is our opinion that this is not to comment [24].

In order to solve the problem most effective way is the eradication parasites of dogs. In our paper wegive our experience in controlling intestinal parasites of dogs using combination of praziquantel/pyrantel pamoate & febantel (Dehinel® Plus tablet).

MATERIAL AND METHOD

Our survey we conducted in cooperation with several veterinary ambulance and clinics in Belgrade in 2015. In total, 223 dogs (113 dogs were small, 61 medium, 12 large breeds and 47 were puppies) were coprology examined.

The examination is carried using native preparation, sedimentation and the zinc sulfate concentration technique (ZSCT) [8,16]. Assessment of the infection will be performed by the methodology described by McMaster and Stoll and determination of eggs and oocysts based on morphological characteristics [2].

In dogs in which they are established parasites are given Dehinel® Plus tablets, according to the manufacturer's instructions.

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RESULTS AND DISCUSSIONS

In 162 (72.64%) dog were established parasitic infections. With one type of parasite were infected with 107 dogs at a poliparasitism established in 55 dogs. The presence of *Toxocara canis* were found in the 35.3%, *Ancylostomidae spp.* in 34.3%, *Toxacaris leonina* in 18,3%, *Strongyloides stercoralis* in the 17.7%, *Trichuris vulpis* in 16.6% *Dipylidium caninum* in the 39.9% and *Taenia spp.* 6.6%.

Protozoa *Giardia intestinalis* was found in the 34.6% so we thought the drug is not registered for its therapy, given the pharmacological aspects of Giardiasis therapy [9] and experience with drugs with simillary ingredient comintation, we used for its control.

Two weeks after the treatment was repeated coprological review in treated animals and the presence of parasites was observed in 8 animals (3.5%) with established poliparasitism. After repeated treatment was made following a new coprological examination (after two weeks of therapy) with whom we not established the presence of helminths. In all cases of giardiasis drug had 100% effect.

Dehinel®Plus tablet contain 150 mg febantel, pyrantel pamoate 144mg and 50 mg of praziquantel. Antiparasitic effect of these three components synergism works on adult and larval nematodes and cestodes [21]. Febantel is metabolised in the liver of dogs in a number of metabolites that impact on the function of microtubules, block the transport and absorption of glucose and inhibit the activity of fumarate reductase of the parasite [21]. Pyrantel pamoate leads to spasmodic muscle paralysis of the parasite so that the host parasite ejects peristalsis. Praziquantel after resorption from the gastrointestinal tract is metabolized in liver and excreted into the bile. It causes damage to the cuticle and tapeworm leads to spasmodic muscle paralysis parasites. Coming to the disintegration of parasites in the gastrointestinal tract so that in the feces of animals are rarely found whole and partial parts tapeworm [21].

High efficiency at drugs to nematode and cestode we have proved during this study. We must point out that the therapy must strictly adhere to the manufacturer's instructions for both the dosage of the drug, the medication delivery during pregnancy and lactation in dogs and especially to interact with other drugs.

Also, a Dehinel®Plus tablet has been shown effective in the treatment of infections with *Giardia intestinalis* so that it can be used for this purpose as off label usage. This combination of ingredients has been used at several other antiparasitic drugs with confirmed efficacy in the therapy of *Giardia* in dogs and use to its control [1,6,14]. This we are confirmed in our research too.

CONCLUSIONS

During the investigation of the efficiency of Dehinel®Plus tablet, we found that in addition to high efficiency in combating parasites that are given in the manufacturer's instructions, the drug has the effect of the therapy of *Giardia intestinalis* which is not stated in the therapeutic range of the drug. How is this antiparasites drugs combination known as effective in combating giardiasis in dogs Dehinel®Plus tablet can be completely safe to use in its treatment.

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REFERENCES

- [1] Barr S.C., Bowman D.D., Frongillo M.F., Joseph S.L., 1998: Efficacy of a drug combination of praziquantel, pyrantel pamoate, and febantel against giardiasis in dogs. *Am J Vet Res.* 59(9):1134-1136.
- [2] Beugnet F., Polack B., Dang H., 2008: Atlas of Coproscopy. Kaliaxis, Paris.
- [3] Childs J.E., 1985: The Prevalence of *Toxocara* species Ova in Backyards and Gardens of Baltimore, Maryland. *Am J Pub Health* 75:1092-1094.
- [4] Demirci M., Kaya S., Çetin E.S., Ardoğan B.C., Önal S., Korkmaz M., 2010:

- Seroepidemiological Investigation of Toxocariasis in the Isparta Region of Turkey. *Iran J Parasitol* 5(2): 52-59.
- [5] Dubinski P., 1998: Epidemiology of toxocariasis in rural and urban areas. *Parasitol Internat* 47: 128-132.
- [6] Edlind T.D., Hang T.L., Chakraborty P.R., 1990: Activity of the anthelmintic benzimidazoles against *Giardia lamblia* in vitro. *J Infect Dis* 162(6):1408-11
- [7] Elaine A., Carvalho A., Regina L., Rocha T., 2011: Toxocariasis: visceral larva migrans in children. *J Pediat* 87(2): 100-110.
- [8] Euzeby J., 1981: Diagnostic Experimental des Helminthoses Animales. ITVS, Paris
- [9] Harris J.C., Plummer S., Lloyd D., 2001: Anti-giardial drugs. *Appl Microbiol Biotechnol* 57(5-6):614-9.
- [10] Jennings L.B., 1997: Potential benefits of pet ownership in health promotion. *J Holist Nurs* 15:358-372.
- [11] Jansen J., van Knapen F., Schreurs M., van Wijngarden T., 1993: Toxocara ova in praks and send boxes in the city of Utrecht. *Tijdschr Diergeneeskund* 11(4): 118-119.
- [12] Lalošević D., Lalošević V., 2008: Toxocariasa – larva migrans in humans and animals. *Zadužbina Andrejević*, Beograd.
- [13] Mangaval J.F., Pavlović I., 2005: Intestinal Parasites (Helminths) Cestoides Order: Cyclophyllidea *Dipylidium caninum*. In: Atlas of Medical Parasitology, ed.P.Karamelo, Turin, Carlo Denegri Fondation & Infectious Disease, Unit A, Tropical and Parasitology Service Amedeo di Savoia Hospital Turin, CD rom.
- [14] Montoya A., Dado D., Mateo M., Espinosa C., Miró G., 2008: Efficacy of Drontal Flavour Plus (50 mg praziquantel, 144 mg pyrantel embonate, 150 mg febantel per tablet) against *Giardia* sp in naturally infected dogs. *Parasitol Res* 103(5):1141-4.
- [15] Pavlović I., 2006: Geohelminths – emerging zoonotic disease in urban areas. VIII International Symposium In Animal Clinical Pathology And Therapy Clinica Veterinaria, Neum, Bosna i Hercegovina, Proceedings CD rom.
- [16] Pavlović I., Kulišić Z., Momčilović J., Mišić Z., Krstić D., 2007: Basic measure to control and sanitation of parasitic contamination of green areas in urban environmental condition. of International Conference on Environment and Sustainable Development. Beograd, Serbia, Abstracts 78-79.
- [17] Pavlović I., Kulišić Z., Petković D., Terzin V., Čurčin Lj., Terzin D., Čurčin K., 2009: Parasites contamination of grassy areas of Belgrade in period 2003 - 2007. International Scientific Conference on Globalization and Environment. Beograd, Serbia, Abstracts book 155-156.
- [18] Pavlović I., Antić V., Terzin D., Terzin V., Petković D., Čurčin Lj., Čurčin K., Pešut B., 2014: Protozoan infections in dogs and their importance in the contamination of the Belgrade urban environment. *Luc Stii seria Med Vet* 57 (3-4):198-202.
- [19] Pavlović I., Jovičić D., Terzin V., Petković D., Terzin D., Pavlović M., Tambur Z., Radivojević S., Savić B., Stanojević S., 2015: Contamination of public places at central Belgrade municipalities with dogs parasites in period 2013-2014. First International Symposium of Veterinary Medicine - One World – New Challenges (ISVM 2015).Vrdnik, Serbia, Proceeding 271-274.
- [20] Plant M., Zimmerman E.M., Goldstein R.A., 1996: Health hazards to humans associated with domestic pets. *Annu Rev Public Healt* 17:221-245.
- [21] Riviere J.E., Papich M.G., 2009: Veterinary Pharmacology & Therapeutics 9th Edition. Wiley-Blackwell, London
- [22] Robertson I.D., Irwin P.J., Lymbery A.J., Thompson R.C.A., 2000: The role of companion animals in the emergence of parasitic zoonoses. *International J Parasitol* 30:1369-1377
- [23] Tylkowska A., Pilarczyk B., Gregorczyk A., Templin E., 2010: Gastrointestinal helminths of dogs in Western Pomerania, Poland. *Wiad Parazytol* 56(3): 269–276.
- [24] Woodruff A.W., 1976: Toxocariasis as a public health problem. *Envir Health*, 84:29-31.