

EFFICACY OF SOME ANTHELMINTICS USED IN PORCINE PRACTICE IN IBADAN, NIGERIA

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Ninety three (93) pigs (crosses of Large white, Landrace, Hampshire and Duroc) were screened for gastrointestinal worms before and after treatment with the following drugs: Levamisole, Albendazole, Morantel citrate, Piperazine, thiabendazole and Ivermectin. The anthelmintic efficacy (measure as reduction egg per gram (EPG) of faeces) observed ranged as follows: Ivermectin – 100% Levamisole – 89%; Thiabendazole – 78.0%; Albendazole – 73.2%; Morantel citrate – 78.7% and Piperazine – 70.6% Ivermectin and Albendazole cleared the Trichuris worms that were not cleared by Morantel, Piperazine and Levamisole. A combination of good hygiene and strict deworming programme will go a long way in eradication of pathogenic helminths of livestock.

KEY WORDS: Anthelmintics, pigs, parasites, Ibadan.

INTRODUCTION

Soulsby (1968) reported that nematodes can colonise land, water, fresh water and seas as well as parasitizing both plants and animals. Their life' cycles require fertilized eggs being laid by the female worm, which are usually expected in faeces. They later hatch into infective larvae outside the host and develop no further until ingested by another or the same animal. Once in the gut, they burrow through the mucosal wall where they undergo several moults before re-emerging in the gut lumen to mature and perpetuate the life cycles (Soulsby, 1968; Blood and Radostits 1995).

Gastrointestinal helminths are from cradle known to be of economic importance in porcine practice and related fields with their effects ranging from poor growth, unthriftiness, diarrhea, anaemia and death (Blood and Radostits, 1995). Since losses of pigs to helminth parasites are enormous, it is imperative therefore to carry our investigations on anthelmintic performance in the pig industry to enable farmers plan their ways forward.

MATERIALS AND METHODS

Using disposable hand gloves inserted in the rectum faecal samples were collected

from 93 (ninety three) pigs. They were crosses of Large white, Landrace, Duroc and Hampshire. Faecal samples collected were then dispatched into universal glass bottles well labeled and filled to the brim to exclude air as much as possible. This reduced the rate of development and hatching of the eggs of worms. Where laboratory examination could not be carried out soon after collection, samples were kept in the refrigerator at 4°C for not more than 24 hours. The faecal samples were collected just before treatment and a week after treatment.

From each pig 3g of faeces were mixed with 30 ml of saturated solution of common table salt (NaCl) in a small glass container and with the aid of sieve the fibrous portion of the faeces was filtered. The eggs per gram (EPG) was determined using a modified MCMaster method. Identification of helminths was done using appropriate morphological criteria of worms and eggs (Soulsby, 1968).

Ninety three (93) pigs were divided into six groups and dewormed as follows:-

Group 1- Morantel Citrate Pyrantel pamoate (17 pigs)

Group 2 - Levamisole (17 pigs)

- Group 3 - Piperazine (23 pigs)
- Group 4 - Thiabendazole (10 pigs)
- Group 5 - Albendazole (14 pigs)
- Group 6 - Ivermectin (Ivomec® 12 pigs)

The groups that still carry worms like trichuris were dewormed further using Ivermectin and Albendazole. Banmith® (Morantel citrate) was given orally separately at 1 tablet 22mg/kg body weight. Albendazole was given orally at 250mg/kg body weight.

Ivermectin was given parenterally at a dose of 1ml/50kg B.wt, Levamisole at 100mg/20kg B.wt and Piperazine was given orally at 110mg/kg – body weight.

RESULTS

The result is presented in table 1. the drug efficacy of Ivermectin topped the list with 100%, reducing the worm load from 250 to zero epg. Levamisole followed with 89.4%, reducing the worm load from 136epg to 29epg. The weakest is Piperazine with 70.6% efficacy. Ivermectin and Albendazole cleared the Trichuris worms that were not cleared by Morantel, Piperazine and Levamisole.

Table 2 shows the effect of the anthelmintics on the specific pathogenic helminth based on species Ascaris, Trichuris and strongyles.

Table 1:
Drug performance of the anthelmintics in pigs

| Drug used | n | Total EPG | | Efficacy % |
|------------------|----|-----------|-----|------------|
| | | BD | AD | |
| Piperazine | 23 | 391 | 115 | 70.59 |
| Levamisole | 17 | 170 | 18 | 89.4 |
| Morantel Citrate | 17 | 136 | 29 | 78.7 |
| Albendazole | 14 | 168 | 45 | 73.2 |
| Thiabendazole | 10 | 50 | 11 | 78 |
| Ivermectin | 12 | 250 | 0 | 100 |

N = number of animals; BD = Before deworming; AD = After deworming

DISCUSSION

Generally all the anthelmintics used reduced the worm load is indicated in the

faecal egg count within a week of administration. Ivermectin had the best deworming effect (98%) while Piperazine is least effective (70.6%) in this group. Ivermectin has an added advantage of being effective against mites, thus treating mange. Piperazine is mainly effective against Ascaris (Brander *et al.*, 1990). Albendazole is also effective against Trichuris.

The need to monitor both infestation and efficacy of anthelmintics need not be over emphasized. The battle against gastrointestinal worms continues. Drug resistance must be arrested as early as detected.

Table 2:
Effect of anthelmintic on specific pathogenic helminth Ascaris, Trichuris and Strongyles.

| Drug | Helminths (%) | | |
|------------------|---------------|-----------|------------|
| | Ascaris | Trichuris | Strongyles |
| Piperazine | 52 | 48 | 48 |
| Albendazole | 50 | 64 | 79 |
| Thiabendazole | 60 | 70 | 70 |
| Morantel citrate | 100 | 59 | 100 |
| Levamisole | 77 | 77 | 77 |
| Ivermectin | 100 | 100 | 100 |

REFERENCES

- Blood D. C and Radosites, O. M. (1995).** Veterinary Medicine. A textbook of the diseases of cattle, sheep, pigs goats and horses 8th edition, published by Bailliere Tindal London pp 1016-1065.
- Brander E. C., Pugh D. M., Bywater R. J. and Jerkins J. W. (1990).** Veterinary Applied Pharmacology and Therapeutics, 5th Edition Bailliana Lindal, London pp 500-561.
- Dunne H. W. and Leman A. D. R. D. Glock, W. L. Mengeling, R. H. C. Penny E. Scholl and B. Straw. (1982).** Diseases of Swine 5th Edition Iowa State University Press, Ames, Iowa, U.S.A.
- Jacob D. E. (1981):** Gastrointestinal parasites in pigs. Veterinary Record 77(16) 461-462.
- Soulsby E. J. H. (1982).** A textbook of helminths, arthropod and protozoa of domesticated animals. 7th edition, Balliere, Tindal and Casell.

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