

Evaluation of a broad spectrum anthelmintic tetramisole on threadworms

by Chin Gan Ghee

MBBS, MRCPG, DCH, DTM & H, D.Obst., RCOG.

INTRODUCTION

MANY ANTHELMINTHIC drugs are in the market, some simple and safe and some very toxic but specific. Hence any anthelmintic with a broad spectrum activity, which could eliminate most of the parasitosis and yet have negligible side effects besides being cheap, could be extremely advantageous. Since 1965, Tetramisole has undergone various clinical trials. In one of these (Tolat R.S. 1968) Ascariasis clearance was found to be 98% in one week and complete within two weeks. 85% Ancylostomiasis cleared in one week and 95% in two weeks; complete in three weeks; of *Trichuris Tricuris* 70% cleared in the first week.

In another trial (Jose' Waks 1968) the following results were excellent against Ascariasis, good against Ancylostomiasis and Oxyuriasis, satisfactory against Strongyloidiasis, fair against *Trichuris* and none against Plathyhelminthiasis and Trematodiasis.

As most results have been excellent with *Ascaris Lumbricoides*, a simple clinical trial was set out with the aim of judging whether Tetramisole is effective against *Enterobius Vermicularis* i.e. threadworm in general practice. This simple procedure could also be repeated with other worms in mind.

PHARMACOLOGY

Tetrahydrophenylimidazotiazol, commonly known as Tetramisole, is a soluble white crystalline substance. It hydrolyses down to its major metabolite 2-Ox0-3-(2-mercaptreoly)-5-phenylimidazoidrine which is insoluble in water and rapidly excreted.

Tetramisole has a quick but short action. Ingested, it disappears from the blood stream in a few hours. It is highly active against all Nematodes but inactive against Trematodes and Cestodes tested. It claims no activity against bacteria, fungi or protozoa. Animal experiments showed that a low concentration of Tetramisole (2-40mg/Kg. depending on the species) is hypothesised to exert a rapid paralysing effect by inhibiting succinate dehydrogenase activity in the worm's muscle. Most nematode worms are expelled within one day after its administration; those expelled later became discoloured, swollen and partially decomposed (Tolat R.S. 1968)

METHOD AND MATERIAL

One hundred patients, aged one to twelve years, were selected over a period of three months regardless of sex, ethnic groups. Indications of patients' choice arose from symptoms and signs of threadworms infestation as volunteered by the parent or from the

patient if old enough; ranging from the presence of thread-like worms, pruritus perianal and perineal, vague abdominal pains, chronic eczema around perineum, loss of appetite, pot belly, pica nocturnal enuresis and general signs of vitamin deficiencies or of multiple worm infestations.

Single dose used in other trials was recommended at 25–100mg, depending on body weight. In this trial, dosage used depended on age and subsequently on weight.

Babies age 1 – 4 = 1 tablet (40mg)

Children age 5 – 15 = 2 tablets (80mg)

Each parent was given a clean slide to collect Enterobias eggs. On first waking in the morning, from the perianal region of the patient by sticking a piece of cellophane tape one inch long. This was done just before Tetramisole administration. Another piece of cellophane tape was used to collect eggs in a similar fashion seven days after the drug had been administered.

RESULT OF THERAPY

Count of Enterobias eggs (size 50 – 25 μ) was scanned by low and then under a single medium field. All other eggs were ignored. Heavy infestations ranged between 30–50+eggs, moderate from 10–30 and light 1–10 per medium power field (\times 40 objective).

Heavy 30–50 eggs		
Patients	Before	After
A	30	10
B	35	0
C	40	8

Moderate 10–30 eggs		
Patients	Before	After
D	12	2
E	15	0–4
F	20	0
G	30	1–2

Light 1–10 eggs		
Patients	Before	After
H	1	0
I	2	0
J	5	0

A sample of the results is shown as tabulated above. Breakdown results showed that of a hundred patients so chosen, about 25% were heavily infected, 40% moderately so and 35% were classified as light shedders.

Worms continued to be shed up to 72 hours or more as seen when some collections were returned by 48 hours with a moderate egg count. However, by end of one week most egg counts were negligible.

Breakdown results also showed that in heavy infestations, Tetramisole eliminates worms down to a moderate light infestation and complete in a third of them by end of one week. In moderate infestation, 90% worms were eliminated in one week. But with light infestation, Tetramisole cleared worms completely by end of one week.

TOLERABILITY

Side effects were few. In some 4%, patients' complaints ranged from anorexia, vomiting, mild abdominal pain and occasional giddiness. All started an hour after ingestion and disappeared within a few hours.

CONCLUSION

A total of one hundred children between one and twelve were treated with Tetramisole, with the aim of judging its effect on Threadworms. Results showed that single doses between 40 – 80mg carried good worm clearance with little or no side effects in light and moderate cases. In heavier infestations, a second dose is recommended one week later to eliminate all threadworms.

In previous trials where this drug has proved effective against roundworms, side effects monitored by S.G.O.T., S.G.P.T., blood picture and urinalysis were devoid of any real toxicity on liver, blood or kidneys.

Tetramisole could offer good prospects of being an effective, single dose, broad spectrum anthelmintic, of low cost and easy tolerability in practical use or for mass treatment for most nematodes.

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