

# A CLINICAL STUDY OF THE USE OF PYRVINIUM PAMOATE WITH PIPERAZINE (VANPAR<sup>(R)</sup>) IN THE TREATMENT OF OXYURIASIS AND ASCARIASIS\*

by

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## ABSTRACT

In this study oxyuris and ascaris infections alone or in combination were treated with Vanpar, a combination of Pyrvinium Pamoate and Piperazine, administered in two successive daily doses. This resulted in a 100% cure rate for oxyuriasis as well as a substantial reduction in ova count for ascaris, amounting to a 97% success rate in achieving ova count reduction. Vanpar was highly effective for the management of pinworm and roundworm infections in this study. The drug was well tolerated with only seven patients (8.8%) displaying drug-attributable adverse experiences.

## INTRODUCTION

Infection with *Oxyuris Vermicularis* and *Ascaris Lumbricoides* is very prevalent in parts of Iran. Simultaneous treatment with one compound for both ascariasis and oxyuriasis would be desirable since they often occur together. Piperazine compounds have been used to treat both infections. A single dose given for two successive days is both safe and effective in treating ascariasis. A longer treatment course (usually 7 days) is necessary to treat oxyuriasis 1,3,4,5,7. For this reason pyrvinium pamoate (Povan<sup>(R)</sup>) has been the drug of

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choice in the treatment of oxyuriasis 4,5,7,7, because a single dose is effective against this infection. It has not been found effective in treating ascariasis 2,3. Therefore a mixture of pyrvinium pamoate and piperazine is a useful agent for treatment of both infections.

Vanpar is such an agent, combining 1 part pyrvinium pamoate (Povan®) and 30 parts piperazine. Vanpar is available as a suspension containing 5 mg. pyrvinium plus 150 mg. piperazine/ml. or as a chewable lozenge containing 25 mg. pyrvinium plus 750 mg. piperazine/tablet. A daily dose provides 2.5 mg. of pyrvinium base (as the pamoate) and 75 mg. of piperazine per kg. of body weight. The object of this study was to evaluate the efficacy and tolerance of Vanpar in treating infections in patients with either pinworms (oxyuris) or roundworms (ascaris) or both.

## METHOD

Eighty patients were chosen to participate in this trial which was conducted between October 11 and December 3, 1971. Ages ranged from 3 to 60 years (median = 13) and weights ranged from 10 to 83.5 kg. (Median = 35). Thirty two subjects were male, forty eight were female. Twenty seven of the eighty patients selected were diagnosed as having both oxyuriasis and ascariasis, thirty nine had only ascariasis and fourteen had only oxyuriasis. Fifty nine of the patients received Vanpar suspension at a dosage of 0.5 ml/kg/day for two days. Thirty seven of these had ascariasis, six had oxyuriasis and sixteen had both infections. The remaining twenty one received Vanpar chewable lozenges at a dosage of 0.1 tablet/kg/day for two days. Total daily dose did not exceed 25 ml. of suspension or 5 tablets. Three patients in the suspension group and thirteen in the lozenge group received the maximum allowable dose. None of the patients had been treated previously for the infections.

Patients were observed prior to, during and after treatment. Ascaris ova counts (Stall technique) and oxyuris scotch tape examinations were done on days -2, -1, 8, 9, 15 and 16. Complete blood counts were done before treatment and again approximately one week later. Haemoglobin estimation, white blood cell count, differential count and urine analysis were done before and after treatment for each patient.

## RESULT AND DISCUSSION

### *Therapeutic Efficacy*

Table 1 shows the average ascaris ova reductions by diagnosis and treatment group and the number of percent of patients in whom 100% ova reduction was achieved. Prior to treatment (day -1) thirty eight\* patients diagnosed as

having ascaris had positive ascaris ova counts. By treatment day 8, twenty nine patients receiving suspension and two receiving lozenges showed a zero ova count (100% reduction). By day 16, thirty two patients showed 100% reduction; the remaining six patients showed from 75 - 97% reduction.

Twenty seven patients had both ascaris and oxyuris infections. All twenty seven had positive ascaris ova counts on day -1. Twenty had counts of 0 ova on all post-treatment exams. Five of the remaining seven had ova count reductions by day 16 which ranged from 58 - 98% and two had ova counts which increased by 40.3% and 62.5% respectively.

Twenty four of the twenty seven patients with both infections had positive scotch tape tests for oxyuriasis on day -1. All scotch tape tests were negative for all the post-treatment tests.

Twelve of the fourteen patients who were diagnosed as having oxyuris infection alone had positive scotch tape tests on day -1. On days 8, 9, 15, and 16 all scotch tape tests were negative. Table 2 shows the cure rate in oxyuriasis following treatment with Vanpar.

The overall therapeutic results for each parasite are summarized as follows. Sixty three of the sixty six patients having ascariasis had ova count reductions by day 16 following Vanpar treatment. Two had increases and one had 0 count throughout the study. Forty one patients with oxyuriasis had negative scotch tape preparations from day 8 onwards, resulting in an overall cure rate of 100%.

#### *Side effects*

Symptoms most commonly reported prior to treatment were abdominal cramps and anemia. During treatment the most common symptoms were nausea and vomiting, constipation, headaches and anemia. Thirteen of the reports of symptoms suffered by seven of the patients were considered to be drug-attributable. These included diarrhea, constipation and headache. All were patients receiving the suspension.

There were no clinically significant laboratory findings, however, the high number of patients with peripheral eosinophilia may be of some interest. Thirty four of the eighty patients (42%) displayed eosinophil counts ranging from 10 - 40% at their first laboratory examination while twenty two (28%) had from 10 - 22% eosinophils approximately one week later.

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\* One patient with a 0 ova count throughout the trial is not included in these figures.

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TABLE 1

Effect of Vanpar on Ascaris Ova Counts

Protocol 578 — 22

Diagnosis	Treatment Group	No. of Subjects	Average Day -1	Ova Count Day 16	Percent <sup>a</sup> . Reduction	No. of Patients with 100% Reduction
Ascaris	Suspension	36 <sup>b</sup> .	11,561 <sup>b</sup>	156 <sup>b</sup> .	99% <sup>b</sup> .	30 (83% <sup>c</sup> ).
	Loezenge	2	4,800	0	100%.	2 (100%.)
Ascaris and Oxyuris	Suspension	16	16,828	4,700 <sup>d</sup> .	73%.	11 (69%.)
	Loezenge	11	4,254	109 <sup>d</sup> .	98% <sup>d</sup> .	9 (82%.)

- The difference between Day -1 and Day 16 divided by Day -1 ova count.
- One patient with an ova about 0 throughout the study is not included in these figures.
- Figures in parenthesis represent the percentage of patients in each group in which 100% ova reduction was achieved.
- One patient with an ova increase not included.

TABLE 2

Cure Rate in Oxyuris Infection Following Treatment with Vanpar

Protocol 578 — 22

Diagnosis	Treatment Group	No. of Patients	Number of Negative Scotch Tape Tests Day -1	Day 8	Day 16	Percent Cured
Oxyuris	Suspension	6	1	6	6	100%
	Lozengé	8	1	8	8	100%
Ascaris and Oxyuris	Suspension	16 <sup>a</sup> .	0	16	16	100%
	Lozenge	11	2	11	11	100%

- One patient with diagnosis of both ascaris and oxyuris infections had no pretreatment observations recorded for oxyuris.

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