

REVIEW ARTICLE

Studies On Amoebicides At The Child Health Department Dr. Pirngadi Hospital, Medan (1969 - 1979)

by

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Abstract

Since 1969 - 1979 trials with amoebicides had been done 9 times in OPD of the Child Health Department, Dr. Pirngadi Hospital, Medan. The children were treated ambulatorily. The tablets were administered under close supervision at the subdivision of Gastroenterology for 3 consecutive days. Stools examination had been done, with direct faecal film only, every day for the first 4 days and once a week for 3 weeks. Evaluation was done by assessing the parasitological and clinical cure rate. A clinical trial with metronidazole had been conducted in 3 groups of children. Each of the three groups consisted of 50 children, and were treated ambulatorily with a single daily dose for three days. The first group treated with a dose of 50 mg/kg bw/day had in a cure rate of 89% and 100%, the second group with a dose of 25 mg/kg bw/day, 87% and 85%. The third group also with a dose of 25 mg/kg bw/day showed cure rate of 93% and 91%. These differences of results in group I, II and III proved to be not statistically significant. There were no side effects observed.

Tinidazole and ornidazole were indeed very effective for treating intestinal amoebiasis, the cure rate was 100%, and no side effects observed.

Received 5th. January 1983.

Introduction

Amoebiasis is known to occur in every part of the world, and is estimated to affect 10% of the world's population. In the latter part of the last century amoebic dysentery and amoebic liver abscess were known as fatal conditions. In 1912 emetine hydrochloride was introduced and proven to be effective against amoebiasis and became at that time a life saving drug. It is well known that this drug exhibited toxicity at therapeutic dosages and high relapse rates in intestinal Amoebiasis. In 1915 oral emetine compounds was found which proved to have curative effects in intestinal amoebiasis.

Between 1920-1940 a large number of luminal amoebicides were developed. Most useful were quinoline and arsenical compounds. In 1966 metronidazole, a derivative of nitroimidazole proved to be successful for the treatment of amoebiasis (Powell, 1966). Since then a number of drugs are reported to be very useful in the treatment of intestinal amoebiasis and amoebic liver abscess.

At the Child Health Department, Dr. Pirngadi Hospital, Medan trials of amoebicides on intestinal amoebiasis have been conducted as shown in Table 1.

Table 1: Trials of Amoebicides on Intestinal Amoebiasis in Medan

No.	Years	Authors	Amoebicides
1.	1969	Jo Kian Tjaij et al.	Mexaform and Entobex
2.	1970	Jo Kian Tjaij et al.	Dehydroemetine
3.	1971	Jo Kian Tjaij et al.	Metronidazole
4.	1971	Jo Kian Tjaij et al.	Metronidazole
5.	1972	Jo Kian Tjaij et al.	Metronidazole
6.	1976	Jo Kian Tjaij et al.	Metronidazole
7.	1977	Lubis et al.	Tinidazole
8.	1979	Panggabean et al.	Tinidazole and Ornidazole
9.	1979	Sitepu et al.	Tinidazole and Ornidazole

Materials And Results.

This article is a summary of the studies done on the effectivity, side effect and relaps of treatment with amoebicides at the Child Health Department since 1969 until 1979.

Included in this study were children attending the OPD with signs and symptoms of dysentery and with microscopic findings of motile haematophagus amoeba in their stools. Treatment was ambulatory. In the

first week the drug was given daily in the hospital as a single daily dose by the mothers under supervision. If in the next week the stools were still positive, the same treatment was continued at home.

Stool examinations were done daily during the first week and twice weekly in the weeks after.

Below is a review of the trials that had been done

1. Mexaform (Jo Kian Tjaj et al, 1969)

Material : There were 23 children treated on Mexaform for 7 days to 15 days, with a dosage of 1½ tablets daily for children 1-3 years of age and 3 tablets daily for children 3-6 years of age.

Results : Fourteen were treated for 1 week. The stools of 11 (78%) of them were negative on fifth day. Twelve children were treated for 2 weeks. In the fourth week the stools of 7 (50%) of these children were negative.

2. Entobex (Jo Kian Tjaj et al, 1969)

Material : There were 18 children treated on Entobex for 7 days, included children older than 6 years of age, who were able to swallow these tablets with a daily dosage of 3 tablets for 7 - 15 days.

Results : On the fifth day 11 (60%) of these children were treated for 15 successive days, but only 8 children could be followed up for 4 weeks or longer. The stools of 4 children (50%) were negative in the fourth week.

3. Oral Dehydroemetine (Jo Kian Tjaj et al, 1970)

Material : The total number of patients treated with Dehydroemetine oral tablets was 68. The dosage was 1 mg/kg bw daily and the duration of treatment 5 - 10 days. Thus one tablet was given to children with a body weight up to 15 kg, two tablets to children with a body weight of 15-25 kg and 3 tablets daily to those children weighing 25-35kg.

Fifty eight patients received a single daily dose out of whom 52 were treated ambulatorily and 6 were hospitalized. Ten patients received a divided dose of 2 - 3 times daily.

Results : 1. Sixty eight children were treated continuously for at least 5 days with a daily dose of 1 mg/kg bw. On the fifth day 33 (49%) were parasitologically cured.

2a. Thirty four patients of the above mentioned 68 children received an additional course of treatment of 5 days duration with a daily dose of also 1 mg/kg bw. On the tenth day 25 (74%) of these 34 children receiving a continuous treatment of ten days, showed negative stool findings.

2b. Eleven children who had still positive stool findings on the fifth day received an additional course of treatment for 5 days with a daily dose of 2mg/kg bw. Seven children (64%) were cured on the tenth day.

3. Ten of 68 children could be treated continuously for 15 days. The daily dose was 1 mg/kg bw in the first course and 2mg/kg bw in the second and third course. On the fifteenth day, 6 children (60%) showed negative stool finding.

4. Fifty eight of 68 children were treated with a single daily dose while 10 children received the drug in 2 divided daily doses. Both groups were treated for at least 5 days. On the fifth day 28 (48%) of the single-dose-regimen children were cured. Among the children with the divided dose regimen 5 children (50%) were cured.

5. Fifty seven out of the 68 children were treated ambulatorily for 5 days. Twenty eight children (4,9%) were cured

on the fifth day.

6. Eight patients (21%) passed in their stools tablets resembling very much the original DHE Ro. 1-9334/20 tablets.

4. Metronidazole (Cross et al, 1975; Jo Kian Tjaj et al, 1965, 1969, 1970)

Material : The remaining 524 children were divided into 4 groups. The first group comprising 56 children were treated with metronidazole with a single daily dose of 50 mg/kg bw for 3 consecutive days. Group II consisted of 51 children and was treated with a single daily dose of 25 mg/kg bw for 3 days. Group III consisted of 55 children and had also been treated with 25 mg/kg bw/day for 3 days, but with a follow up study of about 2 months. Group IV consisting of 362 children were treated with one single dose of metronidazole of 50 mg/kg bw.

Result : We can see the results in table 2, 3, 4, 5.

Table 2 : Result of group I

Days of evaluation	No. of cases	Parasitological cure rate (%)
2	45	73
3	47	83
4	43	91
7	32	89
14	17	100

Table 3 : *Result of group II*

Evaluation in days	No. of cases	Parasitological cure rate (%)
2	41	85
3	40	95
4	40	88
7	39	87
14	23	87

Table 4 : *Result of group III*

Weeks of evaluation	No. of cases	Parasitological cure rate (%)
III	55	88
IV	55	80

Table 5 : *Result of group IV*

Weeks of Evaluation	No. of cases	Parasitological cure rate (%)
I	162	96.9
II	83	97,5
III	47	97,8
IV	14	85,7

There were no side effects observed.

5. Tinidazole (Jo Kian Tjaj et al. 1971)

Material : Thirty three children from the OPD of the Child Health Department were treated ambulatorily with a single dose of 50 mg/kg bw, for 3 consecutive days.

Results : see table 6

Table 6 *Result of Tinidazole treatment*

Days evaluation	No. of cases	Parasitological cure rate (%)
2	33	66,66
4	33	93,9

There were no side effects observed.

6. Tinidazole versus Ornidazole (Jo Kian Tjaj et al, 1971)

Material : Forty children with motile hematophagus amoeba in the stools were included in this double blind trial. Twenty cases were treated with tinidazole and 20 cases with ornidazole, each with a single daily dose of 50 mg/kg bw for 3 consecutive days.

Result : See table 7

Table 7 : *The result of Tinidazole versus Ornidazole treatment*

Evaluation	No. of cases		Tinidazole cure rate		Ornidazole cure rate	
	Tin /	Orn	Clinical /	Parasit (%)	Clinical /	Parasit (%)
2nd days	14	15	42,8	85,7	40	66,6
3th days	16	17	93,7	100	94,1	100
7th days	12	13	83,3	90	100	100
1st week	10	7	90	90	100	100
2nd weeks	5	6	100	100	100	100
3th weeks	5	1	100	100	100	100

Tin = Tinidazole

Orn = Ornidazole

All patients recovered and the symptoms disappeared. The difference in cure rate between tinidazole and ornidazole was statistically not significant ($p > 0,05$).

7. Tinidazole versus Ornidazole (Jo Kian Tjaij et al, 1972)

Material : Fifty children were treated with tinidazole and ornidazole. The trial was a double blind method, 24 cases were treated with tinidazole 50 mg/kg bw/day with a single dose for one day only and 26

cases were treated with ornidazole 50 mg/kg bw/day with a single daily dose for one day only.

Result : Only 41 children consisting of 19 children from group tinidazole and 22 children from group ornidazole can be evaluated (see table 8).

Table 8 : Result of Tinidazole versus Ornidazole treatment

Days of evaluation	No. of cases		Tinidazole CR (%)		Ornidazole CR (%)	
	Tin/	Orn	Clinical	Parasit	Clinical	Parasit
2	19	22	72	58*	82	82*
3	19	22	94,73	100	100	95,45
4	13	17	100	100	100	100
11	8	10	100	100	100	100

CR = Cure Rate
Tin = Tinidazole
Orn = Ornidazole

* $P < 0,01$

All patients recovered and the symptoms disappeared. The difference in cure rate between tinidazole and ornidazole was only on the second day ($p < 0,01$).

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