

Evaluation of 5 days single and combined treatment in intestinal amoebiasis

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Abstract

Eighty patients with intestinal amebiasis were divided into 4 groups. They were treated for 5 days either by metronidazole 500mg x 3 /day alone, tetracycline 500mg x 4/day alone, a combination of tetracycline and metronidazole in full doses, or by 5 days metronidazole followed by diloxanide furoate 500mg x 3 /day for 10 days. The study showed that metronidazole, tetracycline and their combinations eradicated all the clinical manifestations within the period of the treatment, but they didn't eradicate the shedding of cysts in the stool of some patients. However, metronidazole alone or in combination with tetracycline appeared more efficient based on the time required for eradication of the clinical manifestations. According to these results, using diloxanide furoate in a dose of 500mg x 3/day for 10 days after the course of metronidazole was necessary to eradicate the shedding of the cysts and the probability of the recurrence.

Key words: Amebiasis , Metronidazole , Tetracycline , Diloxanide furoate

Introduction

Infection with intestinal *Entamoeba histolytica* is considered the third most common cause of death from the parasitic diseases after schistosomiasis and malaria (1,2). The tropical developing countries , particularly Mexico, India, nations of central and south America, tropical Asia ,and Africa are the areas of highest incidence due to inadequate sanitation and crowding (2). Intestinal amebiasis is common in Iraq due to low personal hygiene and inadequate sanitation (3). The prevalence of this infection varied from one area to another, the prevalence ranged from 3.2 to 40.49% (4-10). Metronidazole 500-750mg 3 times daily for 5 to 10 days was considered as the drug of choice. For the treatment of symptomatic or acute dysenteric amebiasis. However paromomycin 25-30 mg/kg/day in 3 divided doses for 5 to 10 days or tetracycline 500mg 4 times daily for 10 days or diiodohydroxyquin 650 mg 3 times daily for 3 weeks were considered as an alternatives for metronidazole.

Diloxanide furoate was used in a dose of 500mg 3 times daily for 10 days after amebicidal drugs to eradicate cysts in the intestinal amebiasis (3, 11).

Patients and Methods

This study was carried out in six primary health care centers in Thi-Qar governorate, from 15 March to 15 August 1999. During this period, intestinal amebiasis was diagnosed on 180 patients based on clinical manifestation and stool examination. Eighty patients of the total number were selected as adult, educated and cooperative. They were divided randomly into 4 groups (20 patients each) and treated as follow:

1st group: Metronidazole 500mg 3 times daily for 5 days.

2nd group: Tetracycline 500mg 4 times daily for 5 days .

3rd group: Metronidazole 500mg 3 times daily and tetracycline 500mg 4 times daily for 5 days.

4 th group: Metronidazole 500mg 3 times daily for 5 days followed by diloxanide furoate 500 mg 3 times daily for 10 days.

Results

As shown in table 1, using metronidazole alone in a dose of 500mg 3 times daily for 5 days didn't eradicate trophozoites and cysts in all patients. However although this treatment eradicates the blood and mucus in the stool and the occurrence of abdominal cramp ,but some

patients still complain of abdominal pain and flatulence even after 5 days treatment .

Using tetracycline alone in a dose of 500mg 4 times daily for 5 days eradicate abdominal pain, abdominal cramp flatulence and shedding of bloody and mucoid stool within the 4th and 5th days of the treatment, however, tetracycline alone didn't eradicate the shedding of the trophozoites and cysts after 5 days treatment in all patients (table 2).

The combination of metronidazole and tetracycline appeared more efficient, all the clinical manifestations as well as shedding of trophozoites disappeared within the 4th day of the treatment, but even this combination didn't eradicate the shedding of the cysts in the stool of all patients (table 3).

As shown in table 4, using diloxanide furoate in a dose of 500mg 3 times daily for 10 days after 5 days of metronidazole treatment, completely eradicated the shedding of the cysts in the stool of all patients.

Discussion

According to the present results, metronidazole alone was not very efficient in the treatment of intestinal amebiasis when used for 5 days. The presence of trophozoites and cysts may give rise to recurrence of the disease. Modell mentioned that there were a degree of failure when metronidazole used alone in intestinal amebiasis (11). However, the results of metronidazole were better than those obtained with tetracycline based on the time required to eradicate the clinical manifestation. This fact could explain why tetracycline was considered as alternative or second choice in the treatment of intestinal amebiasis, especially in patients who didn't tolerate metronidazole, or when metronidazole was contraindicated for any reason (3,11).

The combination of metronidazole and tetracycline appeared more efficient than each one alone in the eradication of clinical manifestation, but even this combination didn't eradicate the shedding of cysts in all patients. The quickest effects of this combination could be attributed to different mode of actions which increased the chance of killing the parasite. As shown in table 4, using diloxanide furoate for 10 days after 5 days metronidazole therapy, completely

eradicated the shedding of the cysts .It appeared that this combination is the more potent than others.

According to previous studies, and in the view of the cited failures of metronidazole, it is recommended that metronidazole should be followed by a lumen-active agent such as diloxanide furoate (11,12).

References

- 1-Geddes ,A.M., Bryceson ,A.D., Thins, R.N. and Mitchell, D.M. Diseases due to protozoa. In :principles and practice of medicine. edited by Edwards,C.R.W. 7th ed. Edinburgh, churchill Livingstone. 1995; 147.
- 2-Reed ,S.L. Protozoal infections. Tokyo, Mc-Graw hill. 1998; 863.
- 3-Goldsmith, R.S. Amebiasis. In current medical diagnosis and treatment,edited by krupp,A., Steven,A. A lange Medical Book. 1987: 895.
- 4-Al-Hanoon, Z and Mukhlis,S. Prevalence of intestinal parasites among secondary school students in Mousl . J. Fac. Med (Bag). 1980; 24:225-30.
- 5-Kadir, M.A; Kadir, A.A. and Faraj, K.K. Survey study of intestinal parasites among different population of Erbil City. J. Fac. Med. (Bag), 1987; 29: 455-58.
- 6-Kadir, M.A. and Salman, Y.G. Prevalence of intestinal parasites among primary school children in different localities of Al-Tameem province. Ann. Coll. Med (Mousl). 1999; 25: 94-98 .
- 7-Al-Janabi, M.H. Common health problems among primary school children in Sinnyia. Diploma Dissertation, Tikrit University. 1994.
- 8-Al-Naki, H.Z. Intestinal amebiasis among primary school children in Tooz City. Diploma Dissertation, Tikrit University, 1995.
- 9-Mahdi, N.K. and Jassim, A.H. Intestinal parasitic infection among primary school children in three regions of south Iraq. Med. J. Basrah University. 1987; 6: 55 - 61.

10-Hatem , A.A. The prevalence Entamoeba histolytica and Giardia lamblia in Nassiryah City. Diploma Dissertation , University of Baghdad, 1993.

11-Modell, W. Drug of choice . The C.V. Mosby Co.Toronto, 1985: 385.

12-Kalant, H., Roschlau, W. H. and, Sellers,E.S. Principle of Medical Pharmacology 4th ed. Toronto 1985, p. 672.

Table (1): Laboratory and clinical findings of 20 patients with intestinal amebiasis treated by metronidazole 500mg x 3/day for 5 days.

Findings		Before treatment	During the treatment				
			After the 1 st day	After the 2 nd day	After the 3 rd day	After the 4 th day	After the 5 th day
Labrotory findings	No.of patients having cyst	12	12	12	8	6	5
	No. of patients having trophozoite	20	20	16	6	Non	
	No. of patients having blood and mucus in the stool	6	6	3	Non		
Clinical findings	Abdominal pain	12	12	10	8	Non	
	Abdominal cramp	8	6	4	Non		
	Flatulence	6	6	4	2	Non	

Table (2) :Laboratory and clinical findings of 20 patients with intestinal amebiasis treated by tetracycline 500mg x 4/day for 5 days.

Findings		Before treatment	During the treatment				
			After the 1st day	After the 2nd day	After the 3rd day	After the 4th day	After the 5th day
Labrotory findings	No.of patients having cyst	12	12	12	12	10	10
	No. of patients having trophozoite	20	13	11	6	4	3
	No. of patients having blood in the stool	12	9	6	2	Non	
Clinical findings	Abdominal pain	16	12	9	5	3	Non
	Abdominal cramp	12	9	4	2	Non	
	Flatulence	10	9	6	5	3	Non

Table (3): Laboratory and clinical findings of 20 patients treated by a combination of metronidazole 500mg x 3/day and tetracycline 500mg x 4/day for 5 days.

Findings		Before treatment	During the treatment				
			After the 1st day	After the 2nd day	After the 3rd day	After the 4th day	After the 5th day
Labrotory findings	No. of patients having cyst	15	15	12	10	9	9
	No . of patients having trophozoite	20	18	9	6	Non	
	No. of patients having blood and mucus in the stool	10	4	1	Non		
Clinical findings	Abdominal pain	10	10	5	3	Non	
	Abdominal cramp	12	10	2	Non		
	Flatulence	8	6	3	2	Non	

Table (4): Laboratory and clinical findings of 20 patients treated by metronidazole 500mg x 3/day for 5 days followed by diloxanide furoate 500mg x 3/day for 10 days.

Findings		Before treatment	During the treatment					
			After the 1st day	After the 2nd day	After the 3rd day	After the 4th day	After the 5th day	After 10 days diloxanide furoate therapy
Labortory findings	No. of patients having cyst	14	14	12	9	8	8	non
	No . of patients having trophozoite	20	18	16	9	6	Non	
	No. of patients having blood in the stool	12	9	7	4	Non		
Clinical findings	Abdominal pain	11	11	10	7	4	2	Non
	Abdominal cramp	11	9	9	8	4	Non	
	Flatulence	10	9	7	3	Non		