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• BRIEF REPORTS •

Efficacy of saccharomyces boulardii with antibiotics in acute amoebiasis

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Abstract

AIM: To compare the efficacy of antibiotics therapy alone with antibiotics and saccharomyces boulardii in treatment of acute amebiasis.

METHODS: In a double blind, random clinical trial on patients with acute intestinal amoebiasis, 57 adult patients with acute amoebiasis, diagnosed with clinical manifestations (acute mucous bloody diarrhea) and amebic trophozoites engulfing RBCs found in stool were enrolled in the study. Regimen 1 included metronidazole (750 mg Tid) and iodoquinol (630 mg Tid) for 10 days. Regimen 2 contained capsules of lyophilized saccharomyces boulardii (250 mg Tid) orally in addition to regimen 1. Patients were re-examined at two and four weeks after the treatment, and stool examination was performed at the end of week 4. Student's *t*-test, χ^2 and McNemar's tests were used for statistical analysis.

RESULTS: Three patients refused to participate. The other 54 patients were randomized to receive either regimen 1 or regimen 2 (Groups 1 and 2 respectively, each with 27 patients). The two groups were similar regarding their age, sex and clinical manifestations. In Group 1, diarrhea lasted 48.0±18.5 hours and in Group 2, 12.0±3.7 hours ($P<0.0001$). In Group 1, the durations of fever and abdominal pain were 24.0±8.8 and 24.0±7.3 hours and in Group 2 they were 12.0±5.3 and 12.0±3.2 hours, respectively ($P<0.001$). Duration of headache was similar in both groups. At week 4, amebic cysts were detected in 5 cases (18.5 %) of Group 1 but in none of the Group 2 ($P<0.02$).

CONCLUSION: Adding saccharomyces boulardii to antibiotics in the treatment of acute amebiasis seems to decrease the duration of clinical symptoms and cyst passage.

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INTRODUCTION

Intestinal amoebiasis is caused by the protozoan entamoeba histolytica. This organism feeds on the intestinal contents without any invasion to human tissue. It occasionally invades the intestinal wall and causes dysentery. It may also spread from the bowel to the liver and other organs and cause abscess in these organs. In addition, it may persist as cysts in the intestine and the patients become long-term cyst carriers, most of whom remain asymptomatic[1,2].

In most cases, the organism is avirulent but it may become virulent under different circumstances like immune suppression, malnutrition and alterations in intestinal flora[3,4].

Entamoeba histolytica is common all over the world but is more virulent in areas with low hygienic standards and in tropical and subtropical regions[1].

A luminal amebicide achieving high concentrations in the intestine like iodoquinol, paromomycin or diloxanide furoate is usually used to treat cysts. Tissue amebicides with high concentrations in the blood like the nitroimidazoles (especially metronidazole) are the cornerstone of treatment of invasive amoebiasis[5].

Saccharomyces boulardii is saprophytic, thermophylic yeast, which is found growing applications in the prevention and treatment of human septic enteritis[6,7]. The optimal temperature for this yeast to grow is 37 ℃. The gastric juice has no effect on it and it grows all along the gastrointestinal tract. It is used clinically as an oral lyophilized preparation[8]. No significant side effects have been reported with its consumption[9-11].

We assessed the effects of adding saccharomyces boulardii to the standard treatment for invasive amoebiasis.

To compare the routine treatment by means of metronidazole and iodoquinol with metronidazole, iodoquinol and saccharomyces boulardii in the treatment of acute amoebiasis, we performed this study on 57 patients at Shahid Beheshti Educational and Therapeutic Center in Shiraz during one-year period from March 21, 1995 to March 21, 1996.

MATERIALS AND METHODS

Patients with acute amebic dysentery who consented to participate were enrolled. The diagnosis was made according to compatible clinical presentations (acute mucous bloody diarrhea, fever and abdominal pain) and presence of amoeba trophozoite engulfing RBCs in diarrheal stool. Pregnant females, those on maintenance of hemodialysis, steroids or chemotherapy were excluded. The patients were then randomized to receive either metronidazole 750 mg and iodoquinol 650 mg thrice a day for 10 days (Group 1) or the same medication plus lyophilized saccharomyces boulardii (Ultra-levure®, Bio codex, Montrougo, France) 250 mg orally thrice a day (Group 2).

The patients were followed up at two and four weeks. At each visit in addition to recording patients' symptoms and possible adverse effects, pill count was performed. At the end of week 4, another stool examination (fresh spread and floatation) was done. Student's *t*-test, Chi-square and McNemar's tests were used for statistical analysis.

RESULTS

57 consenting patients were randomized (29 in Group 1 and 28 in Group 2). Two patients from Group 1 and one from Group

2 were excluded because of non-compliance. There were 12 (44.4 %) females in Group 1 and 10 (37 %) females in Group 2. Mean age was 29.3 years in Group 1 and 30.8 years in Group 2. Table 1 shows frequency of clinical findings in both groups. The two groups were comparable regarding their clinical presentations, too.

Table 1 Clinical manifestations in two therapeutic groups

	Regimen 1	Regimen 2	*P*
Diarrhea	27 (100 %)	27 (100%)	-
Fever	6 (22.2 %)	7 (26%)	N.S
Abdominal pain	19 (70.4 %)	22 (81.5%)	N.S
Headache	20 (74.1 %)	18 (66.7%)	N.S

N.S=Not significant.

As shown in Table 2, adding saccharomyces boulardii to the usual treatment of acute amebic dysentery decreased the mean duration of diarrhea to almost 25 % ($P<0.0001$) and the duration of abdominal pain and fever to almost half ($P<0.001$). Headache lasted almost equally in the two groups.

Table 2 Time of recovery from main clinical findings

	Regimen 1 (h)	Regimen 2 (h)	*P*
Diarrhea	48.0±18.5	12.0±3.7	<0.0001
Fever	24.0±8.8	12.0±5.3	<0.001
Abdominal pain	24.0±7.3	12.0±3.2	<0.001
Headache	24.0±8.6	24.0±7.9	N.S

N.S=not significant.

Amebic cysts were found in stool specimens of 5 patients (18.5 %) in group 1 and none in group 2 at week 4 ($P<0.02$, Table 3).

Table 3 Amebic cyst carriers in the fourth week after the treatment

	Regimen 1	Regimen 2
Cyst absent	22 (81.5 %)	27 (100 %)
Cyst present	5 (18.5 %)	0 (0 %)

DISCUSSION

Saccharomyces boulardii is a saprophytic yeast which is recommended for the prevention and treatment of septic enteritis[6,7] especially diarrhea caused by clostridium difficile[8,12,13]. It can also reduce the incidence of traveler' s diarrhea[12] and prevent the occurrence of diarrhea in acutely ill patients fed by nasogastric tube[14, 15]. Other diseases in which saccharomyces boulardii has been achieved some success include antibiotic associated colitis[11, 16] and Crohn' s disease[9]. Considering its inhibitory activity on enteropathogens and its anti-diarrheal characteristics, it has also been used in children with diarrhea[17]. Saccharomyces boulardii has been shown to have trophical effects on the small intestine in healthy human volunteers[18].

The exact mechanism by which this yeast prevents or improves diarrhea is still unclear. Saccharomyces boulardii may cause its trophic effect on the small intestine by releasing spermine and spermidine[6]. This yeast can hinder the cholera toxin excretion in the jejunum of mice.

Our data showed that co-administration of lyophilized saccharomyces boulardii with conventional treatment for acute amebic colitis significantly decreased the duration of symptoms and chances of cyst carriers after 4 weeks. This may be due to its potential to restore the beneficial normal flora of the gut, although the precise mechanism of the action remains to be elucidated. Considering the lack of any reported adverse reactions to this product, if our results are reproduced by other investigators, then lyophilized saccharomyces boulardii would be a very useful addition to the treatment of acute amebic dysentery.

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