

CONSERVATIVE THERAPY OF HYDATID DISEASE

Murtazayev Zafar Israfulovich, Baysariyev Shovkat Usmonovich

Samarkand Davlat Tibbiyot Universiteti, umumiy surgery department

Shodiyarova Hilola Janonovna

Teacher of public health technical school named after Abu Ali ibn Sina, Ishtikhan district

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Abstract: To improve the results of conservative therapy for hydatid disease.

Materials and methods. In order to prevent and reduce relapses of the disease, 81 patients (26 with pulmonary echinococcosis, 45 with liver echinococcosis and 8 patients with combined pulmonary and liver echinococcosis received 3 courses of therapy) operated on for echinococcosis were given drug therapy with mebendazole. 197 patients (69 with pulmonary echinococcosis, 107 with liver echinococcosis and 21 patients with combined pulmonary and liver echinococcosis) were treated with albendazole at a dose of 12 mg/kg per day for 30 days (3 courses). Albendazole was used for therapeutic purposes in 38 patients.

Results. Patients with hydatid disease received drug therapy in the postoperative period. 79 patients took mebendazole in an amount of 40 ml/kg body weight for 30–35 days. 197 patients took albendazole at a dose of 12 ml/kg body weight for 30 days.

The anthelmintic effectiveness of the drugs mebendazole and albendazole was assessed on the basis of dynamic ultrasonography, MSCT and x-ray control.

To assess the results of drug therapy, we used the parameters proposed by WHO experts (good and excellent results; satisfactory results; unsatisfactory results).

The effectiveness of treatment of hydatid echinococcosis of the liver and lungs with albendazole ranged from 58.37% to 82.23%, relapses were noted on average in 17.77% of patients.

Conclusions. With traditional and minimally invasive interventions for echinococcosis, subsequent preventive drug therapy with albendazole is urgently necessary.

Keywords: drug therapy for echinococcosis, albendazole, pulmonary echinococcosis, liver echinococcosis, minimally invasive surgery.

КОНСЕРВАТИВНАЯ ТЕРАПИЯ ЭХИНОКОККОВОЙ БОЛЕЗНИ

Аннотация: Улучшить результаты консервативной терапии эхинококковой болезни.

Материалы и методы. С целью предотвращения и уменьшения рецидивов болезни, 81 больному (26 - эхинококкозом легких, 45 - эхинококкозом печени и 8 больным сочетанным эхинококкозом легких и печени проведены по 3 курса терапии) оперированному по поводу эхинококкоза была проведена медикаментозная терапия мебендазолом. 197 больным (69 - эхинококкозом легких, 107 - эхинококкозом печени больным и 21 больному с сочетанным эхинококкозом легких и печени) проведена альбендазолом в дозе 12 мг/кг в сутки в течении 30 дней (3 курса). С лечебной целью альбендазол применен у 38 больных.

Результаты. Больным с эхинококковой болезнью в послеоперационном периоде была проведена медикаментозная терапия. 79 больных принимали мебендазол в количестве 40 мл/кг веса в течении 30 – 35 дней. 197 больных принимали альбендазол в расчете 12 мл/кг веса в течении 30 дней.

Оценку антигельминтной эффективности препаратов мебендазола и альбендазола строили на основании динамической ультрасонографии, МСКТ и рентгенологического контроля.

Для оценки результатов медикаментозной терапии использовали параметры, предложенные экспертами ВОЗ (хорошие и отличные результаты; удовлетворительные результаты; неудовлетворительные результаты).

Эффективность лечения гидатидозного эхинококкоза печени и легких альбендазолом колебалась от 58,37% до 82,23%, рецидивы отмечены в среднем у 17,77% пациентов.

Выводы. При традиционных, таки и малоинвазивных вмешательствах по поводу эхинококкоза настоятельно необходима последующая профилактическая медикаментозная терапия альбендазолом.

Ключевые слова: медикаментозная терапия эхинококкоза, альбендазол, эхинококкоз легких, эхинококкоз печени, миниинвазивная хирургия.

INTRODUCTION

Treatment of hydatid disease is mainly surgical, but in some cases drug therapy plays a role. Since the mid-70s of the last century, a search began for the possibility of conservative drug treatment of human echinococcosis, which was crowned with significant success - these are carbamate-benzolimidazole derivatives. Among this group of drugs, mebendazole and albendazole are widely known. Until recently, mebendazole was widely used in the treatment of echinococcosis, but a number of studies have shown that the drug has significant disadvantages, such as poor absorption in the gastrointestinal tract and hepatotoxicity. Albendazole has better bioavailability and efficacy than mebendazole and is currently the drug of choice. The usual recommended dosage is 10-15 mg/kg/day (1,5).

Most authors consider drug therapy suitable only for small cysts (<5 cm), patients with contraindications to surgery and multiple organ failure or refusal of surgery, with multiple and recurrent cysts, as well as patients with dissemination of the process (2,3).

It is also known that despite the high concentration of albendazole in the blood serum and cyst, the cyst can continue to remain viable, and protoscolixes retain their viability in dead cysts (1,4). Therefore, the role of routine preoperative albendazole to prevent postoperative recurrence is reserved for hydatid cysts that rupture before surgery (6,7).

We consider the use of medications that have a detrimental effect on the elements of an hydatid cyst to be completely justified. For this purpose, chemotherapy was carried out for prophylactic and therapeutic purposes.

To improve the results of drug therapy for echinococcosis.

MATERIAL AND METHODS

Prevention included the administration of the drug as an addition to the surgical method in patients with uncomplicated cysts, operated on for complicated echinococcosis, as well as after surgical interventions for uncomplicated echinococcosis in case of unintentional emptying of the cyst contents into the abdominal or pleural cavities.

Since 1995, in order to prevent postoperative relapse, mebendazole began to be used at a dose of 50 mg/kg per day. Treatment began a month after surgery and the course of treatment

consisted of 30–35 days. In order to prevent relapse, 81 patients with operated echinococcosis were prescribed.

26 patients with pulmonary echinococcosis received chemotherapy, 7 of them had a complicated process. In 4 cases the cysts were multiple. 15 (57.69%) patients underwent one course of therapy for 35 days. 4 (15.39%) patients were given 2 courses and 7 (26.92%) patients with a cyst breakthrough into the bronchus were prescribed 3 courses.

45 patients with liver echinococcosis also received chemotherapy with mebendazole. 29 (64.44%) patients underwent one course. 12 (26.67%) patients with multiple liver cysts underwent 2 courses, and 4 (8.89%) patients in whom cyst breakthrough into the bile ducts was noted during surgery received 3 courses. Only 2 patients were unable to take the full course of therapy due to a pronounced gag reflex after taking mebendazole.

Also, 8 patients with combined echinococcosis of the lungs and liver received 3 courses of therapy after the second stage of the operation.

All patients underwent control general and biochemical blood tests before, in the middle and after the course of therapy.

Since 1997, 197 patients have received chemotherapy with albendazole at a dose of 12 mg/kg per day for 30 days. One of the positive properties of this drug is its low toxicity, which allows it to be used in fairly long courses with a significantly lower risk of side effects. The mechanism of action of albendazole is associated with inhibition of beta-tubulin polymerization, disruption of the activity of the cytoplasmic microtubular system of helminth cells, suppression of glucose utilization and reduction of ATP formation, thus leading to the death of the parasite.

69 patients with pulmonary echinococcosis were prescribed chemotherapy with albendazole. 33 (47.83%) patients with single cysts received one course, 11 (15.94%) patients with multiple cysts, and 25 (36.23%) patients with complicated echinococcosis received 3 courses of chemotherapy with albendazole.

107 patients with liver echinococcosis also received chemotherapy with albendazole. 72 (67.29%) patients underwent one course, and 32 (29.91%) patients with multiple liver cysts and 3 (2.80%) with cyst breakthrough into the abdominal cavity received 3 courses.

21 patients with combined echinococcosis of the lungs and liver received 3 courses of chemotherapy.

Side effects were moderate and temporary and did not affect the course of treatment. Thus, 8 patients had moderate abdominal pain with mild nausea during the first day after taking mebendazole. Another 3 patients experienced malaise with dizziness for a week.

Chemotherapy, as an independent method of treating hydatid disease, is not used in clinical practice by many clinics. Many surgeons are skeptical about the therapeutic potential of chemotherapy drugs.

Chemotherapy was used in the postoperative period for non-radical echinococcectomies, when, for various reasons, individual small cysts could not be removed. The treatment regimen was also used as an independent method of treatment in patients with multiple organ damage by small echinococcal cysts that cannot be surgically removed; with single small cysts up to 3 cm in diameter located in hard-to-reach areas; in cases of early detection of disease relapse.

Albendazole was used for therapeutic purposes in 38 patients. These patients were conditionally divided into 3 categories:

- first – 7 patients with a primary cyst.
- second - 9 patients with multiple forms of echinococcosis.

- third - 22 patients who had an early relapse.

In the first group (n – 7), echinococcosis of the lungs - 5, liver - 2 patients. In all cases, lung cysts were discovered during preventive X-ray examinations. In 4 cases the cysts were localized in the right lung and in 1 patient in the left lung. As for the size of the cysts, small cysts up to 3 cm were noted in 4 patients, and only in 1 case the size of the cyst reached 4 cm. There were no complicated cysts.

All patients with pulmonary echinococcosis were prescribed albendazole therapy. One course was administered to 2 (40%) patients with small cysts. On the 20th day after starting the drug in one patient and on the 32nd day in the second patient, a cyst ruptured into the bronchus. But these patients, after a ten-day break, were prescribed a second course of therapy. In 3 (60%) patients, cyst breakthrough occurred at the end of the second course of therapy. And these patients received a third course of therapy. Two patients with cysts (up to 3.5 cm in size) of the right lobe of the liver received 3 courses of therapy.

The second group (n – 9) included 6 patients with a generalized form of echinococcosis of the abdominal cavity, in whom during surgery, if possible, cysts were removed from the abdominal cavity, and small cysts were punctured. And in the postoperative period, 3 courses of chemotherapy were carried out. In 3 patients with multiple combined echinococcosis of the lungs and liver: in one case, staged minimally invasive operations were performed on the liver and right lung, and for small cysts of the left lung, 3 courses of chemotherapy were performed; in two other cases, surgery was performed on the liver and chemotherapy was given against small cysts in the lung.

The third group (n – 22) included those patients who underwent surgery for echinococcosis and during follow-up a relapse of the disease was detected. Pulmonary localization was identified in 8 patients, 3 of whom were operated on for uncomplicated echinococcosis and 5 with rupture of the hydatid cyst into the bronchus. And 14 patients with liver localization were operated on for uncomplicated liver echinococcosis. All patients received 3 courses of chemotherapy with albendazole.

RESULTS AND DISCUSSIONS

All patients received chemotherapy in the postoperative period. 79 patients took mebendazole in an amount of 40 ml/kg body weight for 30–35 days. 197 patients took albendazole at a dose of 12 ml/kg body weight for 30 days.

Side effects were moderate and temporary and did not affect the course of treatment. Thus, 8 patients had moderate abdominal pain with mild nausea during the first day after taking mebendazole. Another 3 patients experienced malaise with dizziness for a week.

The anthelmintic effectiveness of the drugs mebendazole and albendazole was assessed on the basis of dynamic ultrasonography and x-ray control.

Among the patients taking mebendazole, a control X-ray examination revealed a relapse of the disease in the lungs in 6 patients after 6 months.

The patients received a second course of chemotherapy using the drug albendazole. After the course of treatment, on days 15–20, 3 patients had a breakthrough of the cyst into the bronchus, and in another 3, the cystic formations resolved. In patients taking albendazole during a control study after 6 months and 1 year, no relapses of the disease were detected.

At present, it is not possible to give a final assessment of the effectiveness of pharmacotherapy due to the different approaches of the authors to assessing the results of treatment

with albendazole. In our opinion, the use of the following parameters proposed by WHO experts to evaluate the pharmacotherapy performed is the most acceptable in clinical practice:

- 1) good and excellent results - disappearance or a noticeable decrease in the size of the cyst and then resorption or cyst calcification;
- 2) satisfactory results - size reduction cysts and reduction of symptoms of the disease;
- 3) unsatisfactory results - absence changes in the size and structure of cysts and persistence of symptoms diseases.

1-tabel. Results of treatment with mebendazole

Results of chemotherapy (albendazole)	Pulmonary echinococcosis	Liver echinococcosis	Combined echinococcosis	Total
Good result	11(42,31%)	22(48,89%)	3(37,5%)	36(45,57%)
Satisfactory	9(34,61%)	13(28,89%)	3(37,5%)	25(31,65%)
Unsatisfactory	6(23,08%)	10(22,22%)	2(25%)	18(22,78%)
Total	26	45	8	79

2-tabel. Results of treatment with albendazole

Results of chemotherapy (albendazole)	Pulmonary echinococcosis	Liver echinococcosis	Combined echinococcosis	Total
Good result	40(57,97%)	66(61,68%)	9(42,86%)	115(58,37%)
Satisfactory	17(24,64%)	23(21,50%)	7(33,33%)	47(23,86%)
Unsatisfactory	12(17,39%)	18(16,82%)	5(23,81%)	35(17,77%)
Total	69	107	21	197

The effectiveness of treatment with albendazole for hydatid echinococcosis of the liver and lungs ranged from 58.37% to 82.23%, relapses were noted on average in 17.77% of patients.

We believe that preoperative albendazole treatment weakens the walls of pulmonary cysts and may cause them to rupture, especially in larger cysts. Small, multiple cysts, younger cysts that have thin walls, and cysts without daughter cysts are thought to show the most favorable responses to pharmacotherapy. If effective, after 2 months the cyst becomes smaller and fibrous, and within 3-6 months all empty cysts become fibrous. Most lung cysts disappear within 5 to 14 months after treatment. The use of chemotherapy is not indicated for large cysts due to the risk of their rupture, especially if they are superficial and infected, as well as for inactive or calcified cysts (6,7).

Chemotherapy, as an independent method of treatment, can be used in inoperable patients with primary multiple echinococcosis, in patients with multiple lesions of two or more organs, and in small single cysts.

Although the optimal duration of pharmacotherapy for echinococcosis is not known, it is usually prescribed for 3–6 months. The convention in the past was to give albendazole in 1-month courses with 14-day intervals to avoid hepatotoxicity (1,4). Some authors believe that continuous therapy is more effective than cyclic therapy without increasing side effects (5,6).

CONCLUSIONS.

The use of modern technologies in the surgery of echinococcosis increases its effectiveness, but it is during their implementation that it is necessary to use techniques aimed at preventing relapses. It is in this regard that today, both with traditional and minimally invasive interventions, subsequent preventive drug therapy with albendazole is urgently needed.

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