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REVIEW PAPER

Complementary and alternative medicine in children with inflammatory bowel disease

Elżbieta Krzesiek, Anna Kofla-Dłubacz, Andrzej Stawarski

Wrocław Medical University, Wrocław, Poland

ABSTRACT

Inflammatory bowel diseases are chronic and progressive inflammatory diseases of the gastrointestinal tract. Patients suffering from these diseases, especially if the standard treatment does not bring satisfactory results, more and more often turn to unconventional methods (complementary and alternative medicine). These methods are not only ineffective but also unsafe for the patient. For many of them, there is not enough scientific research. For this reason, the planning of such a method of therapy by the patient should be consulted with his or her doctor. The physician should discuss the potential benefits and risks of non-standard treatment with the patient and advise the patient not to stop conventional therapy.

KEY WORDS:

children, inflammatory bowel disease, complementary and alternative therapy.

INTRODUCTION

Inflammatory bowel diseases (IBD) are chronic, progressive inflammatory diseases of the gastrointestinal tract. These include ulcerative colitis (UC), Crohn's disease (CD) and unspecified IBD. Young adults are most often affected, but about 15–20% of all cases occur in the pediatric population, and the incidence among pediatric patients is 5.2/100,000/year. The etiopathogenesis of these diseases is multifactorial; both environmental factors and genetic predisposition play a role in it, as well as disturbances in the functioning of the immune system and intestinal microbiota.

Depending on the activity of the disease, mesalazine, immunomodulators, and biological drugs as well as topical and general steroids are used in the treatment of inflammatory bowel diseases. The important role of nutritional therapy in the induction of remission has been established in the pediatric population. Exclusive enteral feeding and ModuLife, a diet based on hypoallergenic products and IBD formulas, are indicated by current guidelines as standard therapy for exacerbated Crohn's disease. In addition, patients presenting nutritional deficiencies in laboratory tests are routinely supplemented with iron preparations and vitamins (D_3). Some patients also require supplementation due to the treatment used, e.g. with folic acid during sulfasalazine or methotrexate therapy, or potassium supplements while taking general steroids [1, 2].

However, often patients or their caregivers look for alternative therapies to support or replace the medicines given by the gastroenterologists.

DISCUSSION

Treatment used by patients or their caregivers, in addition to the treatment prescribed by a physician, may be an adjunct to, or a substitute for, prescribed treatment. If this procedure contains elements of alternative medicine, it is referred to as complementary or alternative treatment.

Complementary and alternative medicine (CAM) are products, activities or treatments that do not belong to standard medicine otherwise known as academic, conventional or mainstream.

If these therapies are used in addition to the standard treatment, we are talking about complementary treatment. On the other hand, if they replace standard

ADDRESS FOR CORRESPONDENCE:

Dr Anna Kofla-Dlubacz, Wrocław Medical University, Wroclaw, Poland, e-mail: anna.kofla-dlubacz@umw.edu.pl

therapy, they are considered as an alternative. The combination of all forms of medicine – both conventional with elements of complementary and alternative medicine, the effectiveness of which has been confirmed by scientific research – is called integral medicine [3–5].

Complementary and alternative medicine can be divided into the following categories:

- overall – using, for example, homeopathy, acupuncture,
- natural therapies which comprise the use of herbs, vitamins, minerals,
- (dietary supplements), probiotics,
- manual therapies, such as osteopathy, chiropractic, massage,
- medicine, energy, such as light therapy, reiki healing touch,
- mind-body therapies, which include among others hypnosis, meditation [6].

FREQUENCY OF COMPLEMENTARY AND ALTERNATIVE MEDICINE USE BY PATIENTS WITH INFLAMMATORY BOWEL DISEASES

The use of CAM in patients with chronic diseases is an increasing phenomenon in recent decades, and patients with chronic IBD constitute a large group among them – such therapies are used on average by 21–61% of them. In children with IBD, depending on the country, the proportion ranges from 6.7% in Canada to 72% in Australia. Most often, the patients reported the use of probiotics (54–68%), fish oil (27–50%), vitamins and minerals (37–65%). They also frequently mentioned massage (40–44%), natural medicine (34–40%), acupuncture (23–25%), and homeopathy (18–52%) [5–9].

REASONS FOR USING ALTERNATIVE MEDICINE

Patients who use non-standard therapies are most often motivated by the desire to supplement the treatment or to optimize it. Another argument is the wish to avoid the side effects of conventional treatment or dissatisfaction with its effects.

At the same time, patients use CAM despite the fact that there is a small amount of research in this area, especially studies confirming the effectiveness of such therapies [3, 5, 7, 10].

TYPES OF COMPLEMENTARY AND ALTERNATIVE MEDICINE USED BY PATIENTS WITH INFLAMMATORY BOWEL DISEASES

HERBS

The use of herbal products in the treatment aims to take advantage of their anti-inflammatory and antioxidant properties. The most common treatments reported by patients with IBD include the following: plantain (*Plantago ovata*), curcumin, wormwood (*Artemisia absinthium*), aloe (*Aloe vera*), incense (*Boswellia serrata*), wheatgrass (*Triticum aestivum*), paniculata (*Andrographis paniculata*), milk thistle (silymarin), cannabis (*Cannabis*), evening primrose oil, and mastic gum.

All these substances have been tested, but unfortunately there are insufficient data to draw conclusions about their effectiveness. Although it was found that, e.g., psyllium and curcumin showed an effect comparable to that of mesalamine in the induction of remission in UC, and wormwood in induction of remission in CD supported the effects of adrenal hormones, these studies included small groups of patients. Due to the good tolerability and low side effects, further randomized studies in larger groups of patients may be reasonable. Only the Zeus grapevine raises (*Tripterygium wilfordii*) concerns about its potential toxicity.

VITAMINS, MINERALS

Supplementation is crucial in patients with IBD in case of deficiencies and as a prevention, taking into account abnormal intestinal absorption in the course of CD and the impact of the therapy applied to the patients. Most often, the use of vitamin D_3, vitamin B_{12}, folic acid, calcium and potassium preparations is required.

PROBIOTICS

The effectiveness of probiotics in both induction and maintenance of remission in CD has not been proven in many studies conducted so far. Therefore, they are not recommended in standard therapy. However, it has been shown that a mix of VSL # 3 probiotics, administered solely or simultaneously with standard therapy, can be effective in inducing and maintaining remission in mild and moderate UC both in adults and in children, and in preventing pouchitis. In adult patients with UC, the *Escherichia coli* Nissle 1917 serotype is also effective in maintaining remission of the disease.

FISH OIL

Fish oil is obtained from fatty fishes (tuna, salmon, mackerel, herring, sardine). It contains omega-3 fatty acids, which have anti-inflammatory properties; therefore it has been considered in the treatment of IBD. However, there are currently no data that confirm its effectiveness in inducing or maintaining remission in IBD.

MIND-BODY THERAPIES

Stress can undoubtedly have a negative impact on the course of IBD and is one of the risk factors for exacerbation of the disease. Hence, attempts have been made to modify the lifestyle, use relaxation techniques, meditation

and hypnosis in patients in order to reduce the symptoms of the disease. Although the studies have shown that none of these interventions either reduced clinical activity or normalized laboratory tests, they had a positive effect on general well-being, decrease of anxiety, and sometimes even reduction of pain, which improved the patients' quality of life.

TRADITIONAL CHINESE MEDICINE

Acupuncture aims to stimulate the body by puncturing selected places on the body, the so-called acupuncture points. Moxibustion is expected to support this effect by heating the puncture needles or puncture points with moxa (an herb based on mugwort). Several studies have pointed to the benefits of using both methods in reducing the activity of IBD; however, due to the insufficiently developed methodology of these studies, no final conclusions and recommendations have been established. The use of traditional Chinese medicine in children has not been studied.

DIET

Eating habits may be risk factors as well as means of prevention of IBD. Sugars, animal fats, and highly processed foods with added preservatives are considered to have a negative impact on development of IBD, whereas vegetables, fruit, and high-fiber diet decrease the risk of IBD. People affected by inflammatory bowel disease may suffer from nutritional deficiencies (especially proteins, vitamins or caloric deficiencies), which are caused by either insufficient consumption, malabsorption or loss of nutrients with diarrhea.

A diet with proven beneficial effects, recommended as a therapeutic procedure to induce remission of Crohn disease in children, is exclusive enteral nutrition (EEN). It is based on specialist formulas (industrial diet, Modulen IBD) given orally or through a gastric tube, for 6–8 weeks. No other types of food are allowed to be given during therapy to achieve the anti-inflammatory effect. The results of such therapy are comparable to treatment with adrenal cortex hormones. Currently, the ModuLife program which is the modification of EEN, including a few types of hypoallergenic food in the diet (e.g. chicken, bananas, potatoes, apples) is being tested and considered as effective in induction of remission in Crohn disease. Also, a carbohydrate diet with the use of simple sugars and a diet with a low FODMAP content may have a positive effect on the well-being of patients as well as a hypoallergenic or gluten-free diet, but this requires further observation. Other diets, including elimination diets, are not recommended.

OTHER THERAPIES

Whipworm eggs. In areas where parasitic infections are spread, the disease is less common. However, this observation does not confirm the relationship between lower incidence of IBD and parasitic infections. The idea of therapy is based on hygiene theory according to which parasitic infections can prevent against autoimmunological reaction by modeling the immune response. Parasites induce a Th2 lymphocyte response and reduce the Th1 lymphocyte response, which may decrease the intensity of the inflammatory reaction in the intestines. Despite the presented theory, therapy with parasites is not recommended and can be dangerous in case of individual use [5, 11–13].

CONCLUSIONS

In the treatment of IBD only the medically based strategies should be recommended. Alternative therapies are mostly ineffective and risky for the patients. Calling a drug or an ingredient "natural" is not a guarantee of its safety, because a number of substances may have a toxic effect, while others may affect the metabolism of the prescribed drugs or interact with them. The administration of vitamins also cannot be left out of control, especially those soluble in fats, because they can accumulate to reach toxic concentrations. For this reason, each patient who uses or intends to use unconventional therapy should consult a physician, who is obligated to discuss the therapeutic strategy with a proper explanation of the potential benefits and level of risk of the non-standard therapy and/or discontinuation of the current, standard treatment. It is necessary to be familiar with popular CAM methods to give the patients a feeling of professional care and understanding.

Some of the listed complementary medicine practices are accepted or even recommended for supplementing traditional medicine (vitamin supplementation, the use of certain probiotics or EEN), while others require reliable, randomized, placebo-controlled studies to assess their effectiveness and safety (e.g. herbal therapies, acupuncture, carbohydrate diet) [5, 11–13].

Bearing in mind patient safety, in 2015 the Standing Committee of European Doctors adopted and announced a position on complementary and alternative treatments, which emphasizes that each new treatment method requires reliable research. Public funds should be allocated only to financing treatment that has been proven to be effective and safe. Physicians must inform patients about the nature of CAM practices and the risks associated with them. Appropriate national regulations should be prepared to protect patients against harmful medical practices [14].

The use of CAM among patients with IBD, including children, is common (up to 72%).

Not all CAM practices are effective and safe for patients; some may be harmful.

The role of the physician is to inform the patient or their caregiver about the potential dangers of using CAM, in particular discontinuation of standard therapy.

However, there are forms of CAM that can be used in patients to support standard therapies, but many of them require further research to assess their effectiveness and safety.

DISCLOSURE

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