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ALOE EXTRACT, FACTORS OF THE RAPID ONSET OF THE STAGE OF SCARING IN ZOOONOUS LEISHMANIASIS

Sharopova Gulnoza Samadovna - Assistant of the Department of Epidemiology, Dermatovenerology and Pediatric Dermatovenerology at the Abu Ali ibn Sino Bukhara State Medical Institute, Bukhara, Uzbekistan.
https://orcid.org/0009-0001-6821-2515

ABSTRACT. The study examined the efficacy of aloe extract in the topical application of zoonotic leishmaniasis. To date, specific drug prevention of leishmaniasis has not been developed. One of the important problems in dermatology is the search for effective, low-toxic agents and methods of therapy for cutaneous leishmaniasis, since the drugs used have cardio-, hepato-, and nephrotoxicity. Aloe is known as a medicinal plant. The enhanced antimicrobial properties of aloe vera are attributed to aloe-emodin, present in aloe latex, in the exudate of the aloe plant, which has antibacterial, antifungal and antitumor effects. Aloe vera is well known for its antioxidant, anti-inflammatory, anti-diabetic, pain relieving, immune, anti-aging, and anti-cancer properties.

Keywords: aloe extract, apoptosis, promastigotes, in vitro, in vivo, Leishmania major.

ЭКСТРАКТА АЛОЭ, ФАКТОРОВ БЫСТРОГО НАСТУПЛЕНИЕ СТАДИИ РУБЦЕВАНИЯ ПРИ ЗООНОЗНОМ ЛЕЙШМАНИОЗЕ

Шаропова Гулноза Самадовна - Ассистент кафедры эпидемиологии, дерматовенерологии и детской дерматовенерологии, Бухарский государственный медицинский Институт имени Абу Али ибн Сина Узбекистан.
https://orcid.org/0009-0001-6821-2515

АННОТАЦИЯ. В исследовании изучались особенности эффективности экстракта алоэ при местном применения зоонозного лейшманиоза. На сегодняшний день специфическая медикаментозная профилактика лейшманиоза не разработана. Одной из важных проблем в дерматологии является поиск эффективных, малотоксичных средств и методов терапии кожного лейшманиоза, так как используемые препараты обладают кардио-, гепато-, и нефротоксичностью.

Алоэ известно как целебное растение. Усиленные противомикроорганические свойства алоэ вера приписываются алоэ-эмодину, присутствующую в латексе алоэ, в экссудате растения алоэ, который обладает антибактериальным, противогрибковым и противоопухолевым действием. Алоэ вера хорошо известно своими антиоксидантными, противовоспалительными, противодиабетическими, обезболивающими, иммунными, антивозрастными и противораковыми свойствами.

Ключевые слова: экстракт алоэ, апоптоз, промастиготы, in vitro, in vivo, Leishmania major.

Introduction. The prevalence of leishmaniasis is one of the highest among diseases of parasitic etiology. Annually, up to 1 million people worldwide are affected (1).

The causative agent of cutaneous leishmaniasis was first identified in 1898 in Tashkent by P.F. Barovsky (2). In 1898, P. F. Borovsky precisely determined the systematic position of Leishmania, assigning it to the simplest. Many articles describe the causative agent, which the authors classify as protozoa, close to trypanosomes (3).

By the beginning of the 20th century, various burning and binding agents had become widespread: calcined iron and caustic potassium (Heidenreich), chromium (Cherepnin), lapis (Rapchevsky), lactic acid (Manotskov, Shulgin), zinc chloride (Myshkin, Satinsky) (Dobrotvorskaya N.V. 1940). E. I. Marcinovsky also used a surgical treatment method, removing "under cocaine" the ulcers and scabies in four patients, and after a few days, complete healing occurred. There were no relapses." (4). Professor V. L. Yakimov wrote in 1913 that there is no specific treatment for cutaneous leishmaniasis (5). In world health practice, according to WHO recommendations from 2010, for specific treatment of cutaneous leishmaniasis, five-valent antimony preparations (6), anti-tumor agent for local use: Miltefozin (Impavido, Paladin - Canada), antibacterial drugs: Amphotericin B, Ambisom are used; Paromomycin (India), Monomycin (Uzbekistan), preparations of non-specific, auxiliary action: antiseptics, the action of which is aimed at combating a secondary infection that has joined (7)

In this regard, the publications of authors who empirically treated patients with antibiotics of various pharmacological groups are valuable. These are doxycycline (8) and cefotoxime (Claphoran - 3rd generation cephalosporin) (9). At the same time, data on preclinical studies of these drugs are absent in the literature. Considering that cefotoxime (Claphoran) is an imported drug (France), studying the domestic antibiotic of the same group - ceftriaxone in vitro and in vivo is relevant for research aimed at import substitution. The universal drug for treating leishmaniasis is 5-valent antimony. Therefore, meglumine antimonate (glucanthym) can be used as a control when evaluating the effectiveness of other drugs.

Studies by foreign specialists indicate that the etiological factor of the disease may not be the leishmania itself, but the virus present in them (LRV - leishmanial RNA virus) discovered in 1988 in a patient infected with L. Guyanensis (10). Later, it was found in L. braziliensis and indicated a connection with the more severe course of CL, up to the development of cutaneous-mucosal leishmaniasis (11). When hamsters were infected with LRV-containing leishmania, a strong inflammatory response was noted due to an increase in the level of IFN-β, as well as an increase in the survival of parasites with the virus (12).

In 1928, it was reported that patients with cutaneous leishmaniasis were treated with autohemotherapy without effect (2).

Aloe is known as a medicinal plant. The enhanced antimicrobial properties of aloe vera are attributed to aloe-emodin, present in aloe latex, in aloe plant exudate, which has antibacterial, antifungal, and antitumor effects (13).

Aloe has been used for traditional medical purposes in several cultures. In vitro A. vera extracts stimulate the proliferation of several cell types. Many studies have shown that treatment with A.vera gel extracts leads to faster wound healing, can have a direct effect on the wound healing process as a whole, which is manifested in an increase in the rate of wound healing and an increase in collagen synthesis. (14).

Aloe vera is well-known for its antioxidant, anti-inflammatory, antidiabetic, analgesic, immune, anti-aging, and anti-cancer properties (15).

The plant's various parts contain about 75 nutrients, as well as 200 active compounds, including amino acids, sugars, enzymes, vitamins, minerals, saponins, anthraquinones, lignin, and salicylic acid (16). Volatile components and ascorbic acid are present in the flowers, while polysaccharides, lignin, pectin, hemicellulose, and cellulose are present in the bark. Similarly, leaves are a source of various organic acids, enzymes, phenolic compounds, minerals, and vitamins (17).

Aloe vera as an ingredient is defined as a preparation that maximizes desired components while maintaining them in active and unchanged form, minimizes the number of ingredients that have negative effects, retains benefits, and is present in the final product in quantities sufficient to achieve desired results. (18.21)

A number of antioxidants, such as alpha-tocopherol, carotenoids, ascorbic acid, flavonoids, tannins, vitamins C and E, are present in aloe vera (19,20). Many authors report the antioxidant potential of aloe vera extracts (leaves and flowers). (21, 22, 23).

Due to its unique composition, various industrial applications of aloe vera began to be used. This article briefly describes the therapeutic use of aloe vera, as well as its application in the local treatment of skin leishmaniasis.

Purpose of the research. The purpose of this study was to assess the effect of aloe vera leaf exudate on Leishmania major in the affected areas.

Evaluate the clinical and laboratory changes in local treatment of zoonotic leishmaniasis with aloe extract.

Research materials and methods: 50 inpatient records of sick children, men, and women with zoonotic leishmaniasis were studied for 2 months, with an average age ranging from 3 to 56 years. Patients complained of necrotic foci, leishmaniomas accompanied by an increase in regional lymph nodes and lymphangitis (usually painless), and wounds complicated by purulent infection with the development of phlegmon and sarcoma. Microscopic examination of wound material was carried out to diagnose Borovsky's carcass. Positive parasitological indicators were identified in all patients.

To assess the geometric model, patients with zoonotic leishmaniasis (Karakul district) were divided into 2 groups based on the course of the disease and the method of using aloe extract. Patients of the 1st group (main group) Study the effect of aloe extract when applied 4 times locally for 20 days in patients with wound size from 0.5 to 2 cm and more and with complications in regional lymph nodes.

Results and discussions. In the 1st group (32 individuals), wound size ranged from 0.5 to 2 cm and larger, with regional lymph node complications.

The remaining patients of the 2nd group, regardless of the size of the wound, received traditional therapy. Normal epithelialization of wounds with almost perfect smooth scars occurred in 2 people in the 1st group and in 1 person in the 2nd group.

The following results were obtained after 20 days of application of aloe extract. Changes in wound geometry among patients with leishmaniasis (patients of the 1st group) were detected in the largest number of patients with a weakly expressed atrophic scar formation in 21.9% of cases (7 people). A scar with keloid-like growths was identified in an equal number of patients - 31.3% (10 people). In 47% (10 people) of patients, scars with abscesses: in the center, a scarring of irregular shape is located, surrounded on the periphery by small scars caused by seed bumps, and scars with keloid-like growths were identified in 28% (3 people). Patients of the 2nd group (control group) received traditional therapy in 22.22% (4 people) with mildly expressed atrophic scars, with keloid-like growths in 26.66% (3 people), the remaining patients who had not yet begun epithelialization during the study were 55.5% (10 people).

The following results were obtained that the timing of cleansing and healing of leishmaniasis wounds depends on the clinical form of the disease.

Comparative results of local application of aloe extract in patients with CL. In patients of the 1st group who used the aloe extract, the scarring process began on the 16th-20th day, in patients of the 2nd group, the scarring process began after 2 months of traditional treatment.

Conclusion: Cutaneous leishmaniasis is a significant, potentially modifiable risk factor for enlargement of the geometric boundaries of wounds, which in turn increases the area of the scar. Thus, the increase in scar size is a more significant factor in the formation of the social complex. Local application of aloe extract showed that the use of this compound in the initial stages of CL wound formation reduces the size of the lesion.

REFERENCES

1. П.А. Петрищева, В.М. Сайьшова, З.Н. Вьюков, «География природноочаговых болезней человека в связи с задачами их профилактики» (1969).

2. Maxmudov, F. A., & Latipov, I. I. (2019). THE IMMUNOPATHOGENESIS OF ATOPIC DERMATITIS AND STRATEGY OF IMMUNOTHERAPY. Новый день в медицине, (4), 53-57.

3. Е. И. Марциновского и С. Л. Богрова «К вопросу об этиологии восточной язвы» 1904 г

4. Makhmudov, F. A., & Gulomova, S. K. (2021). Changes in skin leishmaniasis after local treatment. ACADEMICIA: An International Multidisciplinary Research Journal, 11(1), 1744-1749. https://www.indianjournals.com/ijor.aspx?target=ijor:aca&volume=11&issue=1&article=279

5. Maxmudov, F. A., Raxmatov, O. B., Latipov, I. I., Rustamov, M. K., & Sharapova, G. S. (2021). Intravenous laser blood irradiation in the complex treatment of patients with cutaneous leishmaniasis. 湖南大学学报 (自然科学版), 48(9). https://johuns.net/index.php/abstract/114.html

6. Rakhmatov, O. B. (2021). IMPROVING THE PRINCIPLES OF TREATMENT IN PATIENTS WITH ZOONOTIC LEISHMANIASIS WITH THE IMMUNOMODULATOR GEPON AND METHYLENE BLUE USING THE ALT-VOSTOK DEVICE. 湖南大学学报 (自然科学版), 48(9).

7. Трозянц Т.Н. и Щупак Б.М. 1941 «Народно-знахарские средства в лечении кожного лейшманиоза.»

8. A. Masmoudi, A. Dammak, H. Chaaben, N. Maalej,2008, Тихоновская, И. В.2018

9. Э. Е. Шуйкина, И. В. Курбатова, М. И. Курдина, Г. А. Плахотная, Е. В. Дегальцева. 2009 ВОЗМОЖНОСТЬ АНТИБИОТИКОТЕРАПИИ ПРИ ЛЕЙШМАНИОЗАХ. Медицинская паразитология и паразитарные болезни, 2009.-N 3.-С.45-47. Библ. 3 назв.

ИСПОЛЬЗОВАННАЯ ЛИТЕРАТУРА:

1. P.A. Petrishcheva, V.M. Sayshova, Z.N. Vyukov, "Geography of natural focal human diseases in connection with their prevention tasks" (1969).

2. Maxmudov, F. A., & Latipov, I. I. (2019). THE IMMUNOPATHOGENESIS OF ATOPIC DERMATITIS AND THE STRATEGY OF IMMUNOTHERAPY. A New Day in Medicine, (4), 53-57.

3. E. I. Marcinovsky and S. L. Bogrov "On the Question of the Etiology of Oriental Ulcer" 1904.

4. Makhmudov, F. A., and Gulomova, S. K. (2021). Changes in skin leishmaniasis after local treatment. ACADEMICIA: An International Multidisciplinary Research Journal, 11 (1), 1744-1749. https://www.indianjournals.com/ijor.aspx?target=ijor:aca&volume=11&issue=1&article=279

5. Maxmudov, F. A., Raxmatov, O. B., Latipov, I. I., Rustamov, M. K., & Sharapova, G. S. (2021). Intravenous laser blood irradiation in complex treatment of patients with cutaneous leishmaniasis. 湖南大学学报 (табиғи ғылыми 版), 48 (9). https://johuns.net/index.php/abstract/114.html

6. Rakhmatov, O. B. (2021). IMPROVING THE PRINCIPLES OF TREATMENT IN PATIENTS WITH ZOONOTIC LEISHMANIASIS WITH THE IMMUNOMODULATOR GEPON AND METHYLENE BLUE USING THE ALT-VOSTOK DEVICE. 湖南大学学报 (табиғи ғылыми 版), 48 (9).

7. Trozyanz T.N. and Shchupak B.M. 1941 "People's Medicine in the Treatment of Cutaneous Leishmaniasis."

8. A. Masmoudi, A. Dammak, H. Chaaben, N. Maalej, 2008, Tikhonovskaya, I. V. 2018.

9. E. E. Shuykina, I. V. Kurbatova, M. I. Kurdina, G. A. Plakhotnaya, E. V. Degaltseva. 2009. THE POSSIBILITY OF ANTIBIOTIC THERAPY FOR LEISHMANIOSES. Medical parasitology and parasitic diseases, 2009.-N 3.-P.45-47. Bibl. 3 names.