

Biological activity of the mummy. Publication 2: Anti-inflammatory, anti-burn and regenerative action

L.N. Frolova, T.L. Kiseleva

(Institute of Homeopathy and Naturotherapy of the Federal Scientific Clinical and Experimental Center of Traditional methods of diagnostics and treatment of Roszdrav, Moscow)

The spectrum of biological activity of mummy, described in numerous bibliographic sources, is very wide. Previous publication [9] was devoted to the antibacterial effect of mummy. The aim of this work is to analyze the results of experimental studies on the anti-inflammatory, anti-burn and regenerative effects of mummy.

I. Results of the study of anti-inflammatory action

The presence of anti-inflammatory activity in mummy preparations is evidenced by studies of a number of authors [1, 2, 5, 6, 10, 31, 14]. In the studies of A.A. Shinkarenko et al. (1969-1972), the anti-inflammatory activity of an aqueous extract of mummy, obtained from raw materials from deposits of the Caucasus, was confirmed when administered intraperitoneally [11]. The drug reduced the exudation process by 11.9% when administered at a dose of 50 mg / kg and by 25% when administered at a dose of 100 mg / kg. The proliferation process was inhibited in the experiment by 18.1% and 34.79%, respectively [13].

Y. Nuraliev and P. Denisenko (1973, 1977) on rabbits and sexually mature white mice [5, 6], it was shown that the anti-inflammatory effect of mummy is most clearly manifested in relation to the exudative and proliferative phases of the inflammatory process [6]. Oral administration of a solution of dry extract of mummy inhibited formalin, serotonin, histamine and subcutaneous granulomatous inflammation; decreased skin capillary permeability in experimental animals. The authors associate the presence of an anti-inflammatory effect in mummy with the content of phosphorus, calcium, magnesium and cobalt, as well as with its effect on the pituitary-adrenal system and the exchange of catecholamines. According to the authors, the regenerating, antimicrobial, antitoxic, antihypoxic and adaptogenic properties of mummy also play a certain role in the mechanism of the anti-inflammatory action of the drug [6].

The ability of mummy-asil to increase cell permeability and stimulate the proliferation of connective tissue was experimentally established by E.T. Shishkova (1971) on the basis of morphological and histochemical changes in animal organs [14]. According to the author, the revealed spectrum of biological activity of the mummy preparation can be used in clinical practice for the treatment of wounds and fractures.

The research results obtained in the study of the anti-inflammatory effect of mummy are summarized by us in Table 1.

II. The results of the study of anti-burn action

Studied by Y. Nuraliev and P. Denisenko (1973, 1977) anti-inflammatory properties of the drug mummy served as the basis for studying its effect on burn inflammation. It is known that in this pathology, along with the violent manifestation of all symptoms of inflammation, there is necrotic tissue damage and autointoxication associated with the resorption of toxins and other decay products [5, 6].

All experimental animals were exposed to dosed thermal irritation, as a result of which hyperemia of the auricles and punctate hemorrhage were noted. During the experiment, it was shown that mummy, when applied topically and orally, inhibits the development of the burn process.

In experimental animals, starting from the second day of the study, the degree of edema of the auricles decreases in comparison with the control group. On this basis, the authors conclude that the use of mummy in surgical practice is promising for the treatment of burns (Table 1) [6].

III. Results of the study of regenerative action

A number of experimental works are devoted to the study of the ability of mummy to enhance regenerative processes in the body [1, 3, 4-7, 10-12].

V.A. Karimov and M.N. Makhsumov (1965), the effect of mummy on physiological and reparative regeneration was studied [4].

An indicator of the effect of mummy on physiological regeneration was the change in the weight of growing immature mice. The experiments were performed on white mice weighing 12-14 g. The test substance was administered orally in the form of an aqueous solution at doses of 12.5-25.0-50.0-100.0-150.0 mg / kg for 2-4 x weeks. In the course of research, it was shown that mummy at a dose of 12.5 mg / kg on the 14th day of observation enhances the growth of animals by 12%, at a dose of 25 mg / kg - by 20%, at a dose of 50 mg / kg - by 22% compared to control.

In a series of experiments where mummy was administered at doses of 100.0-150.0 mg / kg for four weeks, on the 15th day of observations, an increase in the body weight of the animals was found by 24% and 9%, respectively, compared with the control. On the 28th day of observation, mummy at a dose of 100.0 mg / kg increased growth by 20%, at a dose of 150.0 mg / kg - by 10% [4].

To study the effect of mummy on reparative regeneration, a skin regeneration model was used. The experiments were carried out on male white rats, on the back of which a skin flap 400-420 mm in size was cut... Shilajit was administered in doses of 100.0-150.0 mg / kg for four weeks.

It was shown that in the control groups the degree of regeneration on the 10th day was 60%, and in the experimental groups at a dose of 100.0 mg / kg - 88%, at a dose of 150.0 mg / kg - 81%. On the 18th day of observation, all experimental animals receiving mummy at a dose of 100 mg / kg experienced complete healing of the skin wound. In rats treated with mummy at a dose of 150 mg / kg, healing occurred on the 20th day. In animals of the control group, the wounds were scarred only on the 26th day [4].

The degree of skin wound healing in the experimental group was higher than in the control group. Complete healing in the treated animals occurred six days earlier than in the control animals [4]. This allowed the authors to draw a conclusion about the ability of mummy to enhance physiological and reparative regeneration [4].

A.Sh. Shakirov et al. (1983) studied the effectiveness of the use of mummy with evacuation in the complex treatment of infected wounds [12]. The studies were carried out on rabbits. A model of a purulent wound was reproduced with a suspension of golden

staphylococcus.

Treatment was started on the fifth day after the development of severe wound infection with the formation of redness, infiltration, swelling, pus in the wound focus. The method of treating wounds consisted in opening the pathological focus, removing the purulent-necrotic contents with a vacuum apparatus by sequentially holding it over the entire surface of the wounds and then filling its surface with a mummy solution and applying gauze soaked in mummy. Then ultrasound was applied. At the same time, the mummy was administered orally at 0.1 g daily for 10 days from the first day of treatment. Immunization with toxoid consisted of three doses of 0.1–0.2–0.3 ml in the subscapularis region two days later on the third day [12].

Observations have shown that improving the well-being of animals, cleansing wounds from pus and healing depended on the nature of the treatment. The combined local and oral administration of a 10% solution of mumiyo turned out to be more effective than dioxidine. The average duration of wound healing with the use of Shilajit was 26 days, and with dioxidine treatment - 30 days. The advantage of Shilajit was most evident in cases where the wound was cleaned using a vacuum apparatus followed by a combined local and oral application of Shilajit. In this case, the average duration of wound healing was 13 days, relative to 18 days compared with the group of animals treated with dioxidine and a vacuum apparatus [12].

The combined use of a vacuum apparatus and a mummy led to a faster improvement in the well-being of animals, cleansing of wounds from pus, good granulation and quick healing. Within 10 days, complete wound healing occurred in 8 animals and a marked improvement in 7 animals. The average duration of wound healing was 14 days [12].

As a result of the study, it was found that the most effective and efficient method of wound therapy is the combined use of vacuum, mummy and ultrasound, when during the first 10 days 12 rabbits recovered, and the rest of the rabbits - on the 14th day from the start of treatment. The best results were obtained in the group where the wound infection was reproduced on the 20th day after the start of immunization with staphylococcal toxoid. Complete cleansing of wounds from pus, with good granulation and a subsequent rapid reduction in the size of the wounds occurred in 6 animals - with a single one, in 5 - with a double and in 4 - with three times the use of vacuum followed by the use of mummy and ultrasound. On days 6–7 of treatment, the wound was closed in all animals. The average duration of treatment was 6 days [12].

The mechanism of action of complex therapy on wound infection is quite complex. The vacuum, basically, cleans the surface of wounds from microbes and their toxins, frees them from destroyed corpuscles, dead soft tissues and creates conditions for the restoration of the function of destroyed tissues. Shilajit has an antimicrobial effect, increases the granulation capacity of destroyed tissues, enhances the phagocytic activity of leukocytes. Ultrasonic treatment of purulent-necrotic foci accelerates the destruction of microbes, has an analgesic effect, reduces intoxication, and increases the number of leukocytes on the wound surface. Consequently, mummy in combination with ultrasound stimulates specific and nonspecific immunity and, thereby, increases the natural protective resistance of the macroorganism.

EM. Derkach and T.A. Demina (1981) studied the local wound-healing properties of the aerosol form of mummy. The latter was obtained under the guidance of Professor N.S. Kharchenko in the aerosol laboratory of the Kharkov Chemical-Pharmaceutical Institute. In chronic experiments on animals, the wound-healing effect of the drug was studied in ulcerative lesions of the oral mucosa. It was found that aerosol preparations of mummy stimulate the regeneration of experimental wounds with a single and long-term cutaneous administration [3].

AND ABOUT. Ubashev et al. (1985) the wound healing effect of mummy extract was studied in a chemical burn model [7]. When using the extract, there was an earlier, in comparison with control and cases of treatment with oil-balsamic emulsion, cleansing of wounds from necrotic masses, intensive formation of granulation tissue, accelerated rates of epithelialization and scar tissue formation. The authors believe that the pronounced wound-healing ability of the extract is due to the presence of a complex of biostimulants in it: macro- and microelements, organic substances (chlorophyll, humic acids), which contribute to the activation of reparative processes in the wound [7].

The results of studying the regenerative action of mummy are summarized by us in table 1.

IV. The discussion of the results

From the data in Table 1, it can be seen that it is not possible to objectively evaluate the results of a study by different authors of the anti-inflammatory, anti-burn and regenerative activity of mummy preparations. As a rule, in the works there are no clear indications either on the dosage form of the mummy, or on its concentration, or on the methods of administration and dose. At the time of the described experimental studies, there were no adequate methods of quality control of mummy, which would allow standardization of the studied samples [8]. The experimental technique in different studies also differed, which does not allow us to identify general reliable regularities between the concentration of standardized mummy preparations and its biological activity.

V. Conclusion

To date, the anti-inflammatory, anti-burn and regenerative effect of mummy, shown earlier in the experiment, cannot be considered reliable from the point of view of evidence-based medicine. At the same time, dry mummy extract can be considered a promising drug with anti-inflammatory, anti-burn and regenerative activity.

Table 1

Anti-inflammatory, anti-burn and regenerative activity of mummy

№ п/п	Вид фармакологического действия	Автор исследования, библиографическая ссылка	Год	Характеристика объекта исследования				Результаты исследований
				Название препарата и его концентрация	Способ и дозы введения	Опытные животные	Место отбора проб мумие	
1.	Противовоспалительное	А.А. Шивкаренко с соавт. [13]	1969-1972	Водный экстракт мумие	Внутри-брюшинно по 50 и 100 мг/кг	Не указаны	Кавказ	Процесс экссудации уменьшается на 11,9% (в дозе 50 мг/кг) и 25% (в дозе 100 мг/кг); пролиферации – на 18,1% (в дозе 50 мг/кг) и 34,79% (в дозе 100 мг/кг).
		Ю.Н. Нуралиев [5]	1973	Не указан	Не указаны	Кролики, белые мыши	Не указано	Тормозит формалиновое, серотониновое, гистаминовое и подкожно-грануломатозное воспаление.
		Е.Т. Шишкова [14]	1971	Мумие-асиль	Не указаны	Крысы, мыши	Не указано	Повышает проницаемость клеток и стимулирует пролиферацию соединительной ткани.
2.	Противоожоговое	Ю.Нуралиев и П.Денисенко [6]	1977	Не указан		Кролики, белые мыши	Не указано	Тормозит развитие ожогового процесса.
3.	Регенеративное	В.А. Каримов с соавт. [4]	1965	Водный раствор мумие	Перорально в дозе 12,5-25,0-50,0-100,0-150,0 мг/кг	Мыши	Не указано	Физиологическая регенерация. В дозе 12,5 мг/кг – усиливает рост животных на 12%. В дозе 25,0 мг/кг – на 20%. В дозе 50,0 мг/кг – на 22%. В дозах 100,0-150,0 мг/кг на 15 день увеличивает вес на 24% и 9%. В дозе 100,0 мг/кг на 28 день увеличивает рост на 20%. В дозе 150,0 мг/кг на 28 день увеличивает рост на 10%.
		А.Ш. Шакиров с соавт. [12]	1983	Водный раствор мумие	Внутри раны, местно в виде тампона и перорально по 0,1 г 10 дней	Белые крысы-самцы	Не указано	Регенеративная регенерация – модель кожной регенерации. Степень регенерации на 10 день в дозе 100 мг/кг составляет 88%; в дозе 150 мг/кг – 81%. На 18 день происходит полное заживление кожной раны.
		Э.М. Держач с соавт. [3]	1981	Аэрозольная форма	Не указаны	Кролики	Не указано	В течение 6 дней (в среднем) происходит полное очищение раны от гноя с хорошей грануляцией и уменьшением размера раны.
		И.О. Убашев с соавт. [7]	1985	Экстракт мумие	Не указаны	Не указаны	Не указано	На модели язвенного поражения слизистой оболочки ротовой области установлена регенеративная активность при однократном и длительном накожном введении.
								На модели химического ожога показано ускорение темпов эпителизации и образования рубцовой ткани.

Literature

1. Abu Ali Ibn Sina. Canon of Medicine. Selected Sections. Part I. / Compiled by: U.I. Karimov, E.U. Khurshut. - M. - Tashkent: Commercial Bulletin, Fan AN RUz, 1994. - pp. 309-310.
2. Altmyshev A.A. Secrets of the mummy. - M. : AST. - 1993. -- 6 p.
3. Derkach E.M., Demina T.A. Pharmacological properties of the aerosol form of mummy // Main directions of work in the field creation of medicines in aerosol containers and the prospects for the development of production: Abstracts. report scientific and technical conf. May 28-29, 1981 - M., 1981. - S. 64-65.
4. Karimov V.A., Makhsumov M.N. The effect of the oriental drug mummy on regenerative processes // I Inter-republican symposium on the experimental study of mummy: Mater. symposium. - Dushanbe, 1965. - S. 29-30.
5. Nuraliev Yu.N. Pharmacology of Shilajit: Author's abstract. dis. ... Dr. med. sciences. - Yaroslavl, 1973. -- 34 p.
6. Nuraliev Yu.N. Shilajit and its medicinal properties. - 2nd ed. - Dushanbe: Irfon, 1977. - 112 p.
7. Ubasheev I.O., Nazarov-Rygdalon V.E., Badaraev B. et al. Mummy - "bragshun" is an ancient remedy of Tibetan medicine (source and experimental research) // Bul. Siberian branch of the USSR Academy of Medical Sciences. - 1985. - No. 2. - P. 6-12.
8. Frolova L.N. The study of the chemical composition and development of methods for the standardization of medicinal products from organo-mineral complex mummy: Dis. ... Cand. farm. sciences. - M., 1999. -- T. 1. - 227 p.
9. Frolova L.N., Kiseleva T.L. Biological activity of the mummy. Publication 1. Antibacterial action // Traditional medicine. - 2007. - No. 3 (10). - S. 46-52.
10. "Chzhud-shi" - a monument of medieval Tibetan culture: Per. with tib. / Preface D.B. Dashieva, S.M. Nikolaev. - Novosibirsk: Science. Sib. department, 1988. - 349 p.
11. Shakirov A.Sh., Madzhidov N.M. Shilajit is a stimulant of regenerative processes. - Tashkent: Fan, 1980. -- 120 p.
12. Shakirov A.Sh., Sharifkhodzhaev A.T., Khashimova R.A., Karimov A.K. The use of a mummy with evacuation at complex treatment of infected wounds // Clinical Neurology of Uzbekistan. - Tashkent, 1983. - Issue.
- 11: Application of the Central Asian mummy in experimental and clinical neurology. - S. 53-59.
13. Shinkarenko A.L., Karpova V.V., Gerashchenko G.I., Lisevitskaya L.I. Study of the chemical composition and biological properties Caucasian mummy // Mummy and its medicinal use: Abstracts. report 18 Feb 1972 - Pyatigorsk, 1972. - S. 7-9.
14. Shishkova E.T. Morphological and histochemical changes in the organs of animals with the introduction of mummy asil and in its combination with cortisone (Experimental-morphological and histochemical studies). - Author's abstract. dis. ... Cand. honey. sciences. - Tashkent, 1971. - 17 p.

Frolova, L.N. Biological activity of the mummy. Publication 2: Anti-inflammatory, anti-burn and regenerative action / L.N. Frolova, T.L. Kiseleva // Traditional medicine. - 2007. - No. 4 (11). - S.51-55.

[To favorites](#)