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# THE IMPORTANCE OF MUMIYO IN THE TREATMENT OF BROKEN BONES

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***Annotation:*** *The article presents literature data on the use of the drug Mumiyo in the treatment of bone fractures, as well as the results of numerous experimental studies conducted by scientists around the world and in our country on the effect of Mumiyo in bone fractures on reparative regeneration of bone tissue, blood biochemical parameters and mineral metabolism.*

***Аннотация:*** *В статье представлены литературные данные о применении препарата мумие при лечении переломов костей, а также результаты многочисленных экспериментальных исследований, проведенных учеными мира и нашей страны по влиянию мумие при переломах костей на репаративную регенерацию костной ткани, биохимические показатели крови и минеральный обмен.*

***Keywords:*** *tubular bones, fracture, mineralization, granulatory tissue, osteogenesis, osteoinduction, osteoconduction, biostimulant, Mumiyo, osteocyte, osteoblast, regeneration.*

**Relevance of the topic.** It is known that mineralization is the process of deposition of inorganic chemical components (mainly calcium and phosphates) in bone regeneration. It occurs in the anabolic phase of regeneration and is carried out by osteoblasts of newly formed bone tissue and contiguous tissue. Osteoblasts carry out the process of bone tissue formation by obtaining inorganic substances from the main blood vessels of the injured leg [1; 51-54-p.].

Cells can intensively produce proteins at the right time for the body. In some cases, it is necessary to give impetus to activate the genetic apparatus of the cell. Obviously, this motivation is served by the compensatory reaction of the body to the injury, and in this there is a great need for "building material" (such as calcium and phosphates) for the formation of bone packaging. [2; 17-18 P., 3; p.75.]

Regeneration of bone tissue can be physiological and reparative. Physiological regeneration is represented by bone tissue remodeling, in which bone structures undergo partial or complete resorption. Reparative or restorative regenerations are observed in bone lesions [4; 8-9-p., 5; 48-49-p.].

Regenerative therapy of damaged bone tissue should include three important elements: osteogenesis, osteoinduction, and osteochonducia. Osteogenesis refers to the ability of bone-forming cells to produce new bone. Osteoinduction-the presence of biological mediators is a process that stimulates mesenchymal stem cells to the site of injury and their subsequent circulation to mature bone cells, while osteochondoxia is a physical property of providing a matrix that facilitates vascular penetration and new bone formation [6;20-27-p., 7; 1525-1641 P.].

The termination of bone fragments in a fracture is an orderly process, consisting of several successive events, that is, one event causes the manifestation of the next. It is known that it is important in this that a full-value fibrinous clot is formed. In addition, the presence of mechanical loading fields that arise under the action of filamentous fixation conditions and functional loads, which ensure the spatial-positional orientation of fibroblasts and collagen in the process of fibrinous lax transformation, also plays an important role. [8; 73-80-p., 9; 19-24-p.].

From the above data, it turned out that in bone fractures, the reparative process becomes more active if additional minerals are introduced into the body so that the regeneration process is accelerated. This task is effectively performed by The Mumiyo preparation. The results of the studies of scientists of the world and our country are a clear example of this.

Mumiyo is a promising drug. Mumiyo has anti-inflammatory, adaptogenic, calming, regenerating, cardiostimulating, anticoagulant properties. In addition, mumiyo as a source of microelements is also effective for treating bone fractures.

As a powerful biostimulant, the Mumiyo drug enhances physiological functions in the body and helps mineral substances move from mineral reserves to the blood and naturally towards the fracture area [10; 22-p.]

The composition of the Central Asian Mumiyo includes: Ash - 22.0±0.6% organic elements - 73.6±2.7%; water - 4.2±0.6% nitrogen - 4.6±0.4%; calcium oxide - 4.1±0.8%; phosphorus dioxide - 0.18±0.005%; iron dioxide - 0.04±0.002%; magnesium oxide - 2.9±0.1%; manganese oxide - 0.11±0.0012%; P - 1% in solution - 8,2±0,5% [15; 34-b.].

Organic matter in the Mumiyo - 72.28%, calcium oxide - 1.54; MGO - 2.31; CO2 - 4.95; PO2 - 0.36 and water - 11.9%, free radicals of organic matter, Ca, Pb, Mg, Si, P, Al, Fe, Ti, Mn, k, Na, SN, Ag, Bn, co salts low, Ba, Sr, Zn, Ba, s, be, Su, Mo, b have been identified. In the process of contamination, the amount of trace elements is also reduced. Mumiyo's pH is 8.2-9.6 [16; 52-53-b., 22; 149-150 P.].

Mumiyo not only increases the rate of bone renewal, but also improves blood composition in fractures. In a study of the blood clotting system in patients treated with Mumiyo, it was found that on 3-10 days of treatment, the drug increases the blood clotting time by 92-132% compared to the initial data. Plasma tolerance to heparin decreased by 42-86%. The process of fibrinolysis is accelerated by 39-118%, while the amount of fibrinogen is reduced to 250-300 mg/%. Under the influence of Mumiyo, heparin does not adversely affect the functions of the kidneys and liver [11; 34-40-p.].

In bone fractures and joint exits, the Mumiyo was used by Abubakr Rabi al - Bukharon (960) Mukhammed Arzani (1735), Mukhammad Husayn Shirazi (1762), Al Komuz Mukhit (1795), Alkhashim Mukhammad Husain Alyawi (1888) [12; 47-50-p.].

The literature lists the results of numerous experimental studies on the effect of mumiyo on reparative regeneration of bone tissue, blood biochemical indicators and mineral exchange in various laboratory animal bone fractures. It should be noted that all authors unanimously recognize that, regardless of the technology of obtaining an aqueous extract from and from the collection site of raw materials, there is a pronounced regenerative activity in it in an experimental bone fracture. Mumiyo and its aqueous extracts from various deposits have an exact reparative activity of 0.01 to 0.2 g/kg in the experiment [11; 34-40-p.].

In the treatment of fractures, the following results are observed when the mumiyo drug is taken on an empty stomach once a day, for 10 days: the process of bone packaging formation accelerates by 13-17 days compared to the control group, hematological parameters are normalized, calcium, phosphorus and partial potassium levels, alkaline phosphatase activity, as well as the total amount of protein, 21; P.120.];

In the treatment of closed diaphysis fractures of long tubular bones, the harmless and effective amount of Mumiyo is 0.1-0.2 g/kg. The younger the animal, the more active the restoration of bone tissue. Promotes increased alkaline phosphatase activity and increased calcium and phosphorus levels in the blood [13; 24-26-p.].

In the case of bone fractures in laboratory animals (dogs and rabbits), The Mummy accelerates the appearance of the first signs of bone packaging on average by 9 days, weak - by 15 days, clear - by 16 days, strong - by 20 days. It has been proven that taking small amounts over a long period of time is more effective than using large amounts for short-term treatment. The drug has the best stimulating effect when applied in an amount of 0.15-0.25 g for 10 days [21; 120-p., 18; 126-130-p.]

In mummy animals, a change in blood composition towards a disorder is observed only at the initial stage of the experiment. In the following days, negative

indicators are sharply reduced when taking it. In most experimental animals, positive changes in blood composition occur on the 10-15th day after surgery under the influence of mumiyo – the quantitative indicators of hemoglobin and erythrocytes increase before surgery, the reaction of erythrocyte deposition slightly accelerates, but does not go beyond the norm [10; 22-p.,19; 90-95 P.].

The activity level of alkaline phosphatase in rabbit blood has been studied in the treatment of rib fractures with Mumiyo. As a result of studies, the most obvious increase in alkaline phosphatase activity (to 2.2-3 units in relation to initial indicators) was observed in rabbit children in the experimental group for 13 to 16 days after injury, that is, during the formation of bone packaging, as evidenced by the fact that mummy preparations stimulate the regeneration of bone tissue [14; 11-12-b., 20;5 p.].

**Conclusion.** 1. In the formation of bone packaging, the body needs a great deal of "building material" (such as calcium and phosphates) so that cells can intensively produce proteins at the right time.

**2.** Mumiyo has anti-inflammatory, adaptogenic, calming, regenerating, cardiostimulating, anticoagulant properties.

**3.** In the treatment of fractures, mumiyo is harmless and effective, contributing to alkaline phosphatase activity in the blood as well as an increase in calcium and phosphorus levels.

**4.** In the case of bone fractures in laboratory animals (dogs and rabbits), The Mummy accelerates the appearance of the first signs of bone packaging by an average of 9-20 days.

**5.** It has been proven that taking mummies in small amounts over a long period of time is more effective than using large amounts for short-term treatment. The drug has the best stimulating effect when administered in an amount of 0.15-0.25 g for 10 days.

**List of literature used:**

1. Концевая С.Ю., Дерхо М.А. Оценка способов лечения переломов трубчатых костей у собак // Ветеринария. Москва, 2001. №10. –С. 51- 54.

2. Шакирова Ф.В. Комплексное лечение переломов костей голени у собак // Автореф дис…канд…вет… наук: Казань, 2004. – С. 17-18.

3. Решетняк В.В., Бурдейный В.В., Пронин В.В., Искалиев Е.А. Репаративный гистогенез костной ткани при переломах бедренной кости у крыс при использовании биокомпозиционного материала на фоне иммунокоррекции // Ж. Ветеринария сегодня, том 10, № 3, Москва, 2021. - 75 с.

4. Ткаченко С.С. «Остеосинтез» Ленинград «медицина». 1987. – С. 8-9.

5. Таштемиров Р.М, Йулдошев Д. Е. // Суяк қадоғи ҳосил бўлишига суяк кимёвий таркибининг таъсири. Аграр соҳадаги илм-фан янгиликлари ва истиқболдаги вазифалар.Иқтидорли талаба ва магистрантларнинг “2016 йил-Соғлом она ва бола йили” га бағишланган илмий конференция материаллари тўплами. 1-қисм. Самарқанд, 2016. –Б. 48-49.

6. Giannoudis P.V, Dinopoulos H, Tsiridis E. Bone substitutes: an update. Injury. 2005;36(Suppl 3):S. – P. 20-27.

7. Kalfas I.H. Principles of bone healing. Neurosurg Focus. 2001;10(4):E1 Kenneth, D. Johnson Femoral Shaft Fractures // Skeletal Trauma. – Saunders (1992). – P.1525-1641.

8. Попсуйшапка А.К., Литвишко В.А., Подгайская О.А., Сращение отломков после перелома кости // Харьковская медицинская академия последипломного образования, Журнал. Ортопедия, № 2. 2009. – С. 73-80.

9. Воронович И.Р., Ролевич И.В., Губко А.А и др. Заживление переломов костей: экспериментальные и клинические исследования // Минск: Наука и техника, М. 1994. –С.19-24.

10. Шакиров А.Ш. Мумиё асиль в комплексном лечении переломов костей (Экспериментальное и клиническое исследование): // Автореф. дис… д-ра мед... наук.– Ташкент, 1967. – 23 с.

11. Фролова Л.Н., Киселева Т.Л. Биологическая активность мумиё. Публикация /: регенеративное действие при переломах костей // Традиционная медицина. 2010. – Т 33, №2. – С. 34-40.

12. Алтымышев А.А. Что мы знаем о мумиё // Москва. Издательство ДОСААФ. – 1989. – 47-50 с.

13. Исмаилова В.Н. Лекарственное средство мумиё асиль и его влияние на регенерацию тканей при переломах костей у растущего организма в эксперименте // И Межреспубликанский симпозиум по кспериментальному изучению мумиё: Матер. симпоз. – Душанбе, 1965. – С. 24–26.

14. Бекиев Р.О. Щелочной фосфатазе крови при лечении мумиё переломов ребра кроликов // Межреспубликанский симпозиум по экспериментальному изучению мумиё: Матер.симпоз. – Душанбе, 1965. – С. 11–12.

15. Нуралиев Ю.Н. Фармакология мумиё: // Автореф. дис. д-ра мед… наук,- Ярославль, 1973.- 34 с.

16. Навроцкий В.В. Микроэлементы крымского мумие (к вопросу о лечебном действии мумие на организм человека) // Микроэлементы в медицине. 2001, 2, 2, –С. 52-53.

17. Таштемиров Р. М., Хайдарова С. А. ВОЗРАСТНЫЕ ИЗМЕНЕНИЯ МАССЫ МЫШЦ ТАЗОВОЙ КОНЕЧНОСТИ В ОНТОГЕНЕЗЕ У КАРАКУЛЬСКИХ ОВЕЦ ПРЕДГОРНОЙ ЗОНЫ УЗБЕКИСТАНА //СОВРЕМЕННОЕ СОСТОЯНИЕ, ТРАДИЦИИ И ИННОВАЦИОННЫЕ ТЕХНОЛОГИИ В РАЗВИТИИ АПК. – 2019. – С. 131-135.

18. Haydarova, S. A., Narziev, B. D., & Tashtemirov, R. M. (2022). Dynamics of X-Ray Status After Osteosynthesis in Dog Fractures of Injury Bones. *Central Asian Journal of Theoretical and Applied Science*, *3*(8), 126-130.

19. Khaidarova, S. A. (2022). Hematological indications for the treatment of fractures of tubular bones in dogs by osteosynthesis. *Eurasian Medical Research Periodical*, *7*, 90-95.

20. Нарзиев, Б. Д., Хайдарова, С. А. (2022, April). HISTOLOGICAL STRUCTURE OF THE BONE CALLUS IN INTRAMEDULLARY OSTEOSYNTHESIS OF THE FEMUR. In BREAKTHROUGH SCIENTIFIC RESEARCH AS AN ENGINE OF SCIENCE: Collection of articles following the results of the International Scientific and Practical Conference (p. 5).

21. Маджидов Н.М., Шакиров А.Ш. Юлдашев К.Н. Мумиё - стимулятор регенеративных процессов // Ташкент: Фан, 1980. – С. 120.

22. Haydarova S.A., Narziyev B.D., Tashtemirov R.M. OSTEOSINTEZ OPERATSIYASIDAN KEYINGI OSTEOREPARATIV DAVOLASH JARAYONIDA QUYONLARNING KLINIK KO‘RSATKICHLARI Veterinariya meditsinasi. J. Maxsus son. 2023. 149-150-b.