

Biological activity of the mummy. Publication 11: Effects on blood clotting and platelet count

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SUMMARY

Analyzed and summarized results numerous experimental studies on the effect of mummy on blood clotting, platelet count and the possibility of using it for various diseases, including thrombophlebitis.

Key words: mummy, mummy extract, anticoagulant activity, coagulability blood, platelets.

This publication is a logical continuation of our previous work [6], devoted to the results of an information and analytical study of the effect of mummy on some blood parameters.

I. Influence on blood clotting

T.R. Abdurakhmanov and T.A. Khashimov (1971) investigated the effect of mummy on some blood clotting indicators in vitro. In control experiments, 0.1 ml of 0.9% mummy solution prepared in 0.9% sodium chloride solution [1, 3].

During the experiment, it was found that the clotting time of whole blood, the time of recalcification of oxalate plasma, plasma tolerance to heparin in the control group were, respectively, 480 ± 20 ; 85 ± 5 ; 170 ± 10 seconds. In the experimental group, the same indicators were, respectively, 1800; 180; 300 seconds. When mummy was added, the whole blood did not clot for 30 minutes [1]. Slowing down the time of recalcification of oxalate plasma in experiments in vitro indicates a violation of the first phase of blood coagulation - the formation active thromboplastin in direct contact with the substrate. Shilajit reduced the activity or decreased the number of factors V and VII + X involved in the formation of active thromboplastin, and slowed down the third phase of blood coagulation - the conversion of fibrinogen to fibrin [1].

It was also shown that the drug sharply lowered plasma tolerance to heparin, exerting a heparin-like effect [1, 3]. However, it is not possible to correctly evaluate the results of the experiment, since the study lacks the characteristics of the object of study - the name of the drug; deposit of raw materials used to obtain the drug; method of cleaning raw materials; drug concentration; experiment technique.

In another work, T.R. Abdurakhmanov and T.A. Khashimov (1972) the action of mummy (at a dose of 50 mg / kg) on some indicators of blood clotting against the background of hexenal anesthesia (20 mg / kg), novocaine (7.5 mg / kg) and against the background of the action of the intoxicating lagochilus (hareguba) infusion (1 g / kg) ... The object of the study was blood taken from the exposed femoral vein of dogs after anesthesia [2].

It is well known that hexenal and novocaine are capable of "turning off" the neuro-reflex mechanism of regulation of blood coagulation. Moreover, hexenal "turns off" the central nervous system, and novocaine - receptors of blood vessels [2].

During the experiment, it was shown that the time of blood coagulation, the time of recalcification of oxalate plasma, plasma tolerance to heparin after the introduction of hexenal were, respectively, 546 ± 78 ; 72 ± 8 ; 219 ± 47 seconds [2]. That is, the mummy injected against the background of hexenal reduced blood clotting, lengthened the recalcification time to 136 seconds (by 188%) and lowered the plasma tolerance to heparin to 444 seconds (by 200%) [2].

Shilajit, introduced against the background of the action of novocaine, disrupted the process of blood coagulation, lengthened the recalcification time by 164% and lowered plasma tolerance to heparin by 161%

[2].

Against the background of the action of the intoxicating lagochilus infusion (1 g / kg), the mummy did not change either the blood coagulation time or the time of recalcification of oxalate plasma to heparin [2]. The results of the studies carried out indicate the absence of dependence of the anticoagulant activity of mummy on the functional state and reflex activity of the central nervous system, since the anticoagulant effect persists against the background of the action of hexenal and novocaine. It can also be assumed that the anticoagulant effect of the drug is associated with its direct effect on blood coagulation factors [2].

At the Department of Hospital Surgery and Pharmacology of the Andijan State Medical Institute named after M.I. Kalinina K. Vakkasov (1973) on dogs has been studied the possibility of using mummy in the treatment of deep vein thrombophlebitis of the extremities [4].

In the course of the study, it was found that the drug reduced blood clotting by 2–3 times, lengthened the time of recalcification of oxalate plasma by 2–3 times, decreased plasma tolerance to heparin by 12–85%, lengthened heparin (from 34 to 102%) and thrombin (from 25 to 220%) time. All this indicates the anticoagulant and vasodilating effect of mummy and the possibility of its use in thrombophlebitis and trophic ulcers [4]. The results obtained were formalized in the form of a Ph.D. thesis [4].

II. Effect on platelet count

Blood clotting is the most important reaction of the body, preventing blood loss in case of accidental damage to blood vessels. The mechanism of blood coagulation is a complex enzymatic process in which platelets play an important role. Platelets help restore endothelium and blood vessel function by attaching to damaged walls; are involved in blood clotting, which prevents bleeding and the release of blood from the blood vessel. The participation of platelets in homeostasis is carried out due to the ability to maintain the normal structure and function of the walls of microvessels (angiotrophic function), while maintaining the spasm of the damaged vessel, as well as to form a primary platelet plug in the damaged vessel (adhesive-aggregation function), participate in blood coagulation and affect fibrinolysis.

It is well known that a change in the tone of the autonomic nervous system is accompanied by changes in the platelet composition of the blood. When the sympathetic part of the nervous system is excited, the phenomena of thrombocytosis are noted. With mental agitation and an increase in the tone of the parasympathetic part of the nervous system, thrombocytopenia is observed.

ON. Shelkovsky and N.K. Shelkovskaya (1965) studied the effect of mummy on platelet composition of the peripheral blood of dogs. Blood for analysis was taken from the femoral vein before the experiment and after 5, 30, 60 and 90 minutes after intra-arterial administration of 40, 20, 10, 5 and 1% solutions and intravenous administration of 1% solution of mummy extract [8].

As a result of the studies, it was found that in the peripheral blood of healthy dogs, the normal platelet count ranges from 204 to 576 thousand in mm^3 (the average content is 392.0 ± 54.8 thousand). Intra-arterial and intravenous administration of various concentrations of mummy extract caused a drop in the number of platelets in the peripheral blood. Moreover, the maximum drop was observed in the first 5 minutes with the introduction of all concentrations, with the exception of a 40% solution, where the maximum drop was observed 30 minutes after administration [8].

With the intravenous administration of a 1% solution of the mummy extract, such a sharp drop in the number of platelets was not observed as with the intra-arterial administration of the extract of the same concentration. This is probably due to different reception in arterial and venous vessels. It was also noted that after intravenous and intra-arterial administration of 1% extract of mummy, after 90 minutes, the number of platelets approached the initial data [8].

Thus, the authors indirectly showed the effect of mummy on the parasympathetic nervous system, manifested by an increase in its tone [8].

In the work of N.A. Shelkovsky and V.A. Savenko (1965) research duration 30 days were performed on male chinchilla rabbits with an initial platelet count of 360 thousand [7].

V I series of experiments (the drug was administered daily with food at 50 mg), starting from the 9th day of the experiment, there was a persistent increase in the number of platelets, which did not reach the initial level by the end of the experiment. In Series II (the drug was administered by 100 mg) - there was first an increase in the number of platelets, which began to fall from the 18th day of the experiment. A steady increase occurred from the 21st day and persisted until the end of the observation. VIII series (which received 200 mg of the drug for 30 days) - throughout the experiment, there was a slight decrease in the number of platelets [7]. Thus, the dependence of the number of platelets on the dose of mummy was shown.

Studies of the composition of peripheral blood, including platelets, were carried out by V.I.Kozlovskaya et al. (1972) on 12 rabbits. Group I (experimental - 6) consisted of animals that received every other day orally for 20 days a 2.5% solution of Caucasian mummy up to 100 mg / ml (based on 50 mg / kg of body weight per day). Group II (control) received only saline [5].

The studies were carried out on the 6th, 10th, 14th, 21st and 30th days. In the course of research, it was shown that the introduction of a solution of mummy promotes the most active increase in the number of platelets. Before the administration of the drug, the number of platelets averaged 176.0 ± 11.5 thousand. After three times the use of mummy, the number of platelets increased to 230.0 ± 11.2 thousand ($P < 0.01$). Subsequently, a gradual increase in the content of platelet plates was observed, of which by the end of the experiment there were up to 349.0 ± 0.3 thousand. In the control group, on the contrary, there was a slight decrease in the number of platelets [5].

Thus, the research results indicate that long-term oral administration of a 2.5% solution of mummy at a dose of 50 mg / kg has a stimulating effect on the morphological composition of the blood of rabbits, including increasing the number of platelets [5].

III. The discussion of the results

The results of the information and analytical research carried out were summarized by us in a table.

From the data in the table it can be seen that the mummy (in the experiments in vitro and in vivo) has an anticoagulant activity: lowers blood clotting 2-3 times; lengthens the time of recalcification of oxalate plasma by 2-3 times; lowers plasma tolerance to heparin; lengthens heparin and thrombin time. The anticoagulant activity of mummy does not depend on the functional state and reflex activity of the central nervous system, since it remains against the background of the action of hexenal and novocaine. It is also possible that the anticoagulant effect of mummy is associated with its direct effect on blood coagulation factors.

Intra-arterial and intravenous administration of various concentrations of mummy extract causes a drop in the number of platelets in the peripheral blood. The maximum drop is observed in the first 5 minutes with the introduction of all concentrations, with the exception of a 40% solution.

Long-term oral administration of a 2.5% solution of mummy at a dose of 50 mg / kg increases the number of platelets.

Effect of mummy blood clotting, platelet count

Table 1

№ п/п	Автор исследования, библиографическая ссылка	Год	Характеристика объекта исследования				Результаты исследований
			Название препарата и его концентрация	Способ введения и дозы	Опытные животные	Место отбора проб мумиё	
I. Влияние на свертываемость крови							
1.	Т.Р. Абдурахманов и Т.А. Хашимов [1]	1971	мумиё (концентрация и способ приготовления экстракта не указаны)	0,1 мл 0,9 % раствора мумиё, приготовленного в 0,9 % растворе хлорида натрия	<i>in vitro</i>	не указано	Обладает антикоагулянтной активностью: понижает свертываемость крови в 2-3 раза; удлиняет время рекальцификации оксалатной плазмы в 2-3 раза; понижает толерантность плазмы к гепарину; удлиняет гепариновое и тромбиновое время.
2.	Т.Р. Абдурахманов и Т.А. Хашимов [2]	1972	мумиё (концентрация и способ приготовления экстракта не указаны)	доза 50 мг/кг	собаки	не указано	Мумиё, введённое на фоне гексена-ла, понижает свертываемость крови, удлиняет время рекальцификации до 136 секунд (на 188%) и понижает толерантность плазмы к гепарину до 444 секунд (на 200 %). На фоне действия новокаина, нарушает процесс свертывания крови, удлиняет время рекальцификации на 164 % и понижает толерантность плазмы к гепарину на 161 %. На фоне действия настоя лагохилуса опьяняющего, не изменяет ни время свертывания крови, ни время рекальцификации оксалатной плазмы к гепарину.
3.	К. Ваккасов [4]	1973	не указано	не указано	собаки	не указано	Понижает свертываемость крови в 2-3 раза, удлиняет время рекальцификации оксалатной плазмы в 2-3 раза, понижает толерантность плазмы к гепарину на 12-85 %, удлиняет гепариновое (от 34 до 102 %) и тромбиновое (от 25 до 220 %) время.
II. Влияние на содержание тромбоцитов							
4.	Н.А. Шелковский и Н.К. Шелковская [8]	1965	экстракт мумиё (концентрация и способ приготовления экстракта не указаны)	внутриартериально – 40, 20, 10, 5 и 1 % растворы; внутривенно – 1 % раствор	собаки	не указано	Внутриартериальное и внутривенное введение различных концентраций вызывает падение числа тромбоцитов в периферической крови. В первые 5 минут после введения всех концентраций наблюдается максимальное падение числа тромбоцитов. При введении 40 %-ного раствора максимум падения наблюдается через 30 минут после введения.
5.	Н.А. Шелковский и В.А. Савенко [7]	1965	экстракт мумиё (концентрация и способ приготовления экстракта не указаны)	перорально по 50, 100 и 200 мг	не указано	не указано	В дозе 50 мг происходит стойкое повышение числа тромбоцитов, не достигающее исходного уровня к концу опыта. В дозе 100 мг сначала наблюдается повышение числа тромбоцитов, которое с 18-го дня эксперимента падает. Стойкое повышение происходит с 21-го дня и сохраняется до конца эксперимента. В дозе 200 мг отмечается некоторое снижение числа тромбоцитов.
6.	В.И. Козловская с соавт. [5]	1972	мумиё (концентрация и способ приготовления экстракта не указаны)	100 мг 2,5 % раствора	кролики	Кавказ	Длительное пероральное введение 2,5 % раствора мумиё в дозе 50 мг/кг оказывает стимулирующее влияние на гемопоэз кроликов, в том числе способствует увеличению количества тромбоцитов.

IV. Conclusion

Based on numerous experimental studies, mummy preparations can be considered promising drugs that affect blood clotting with various routes of administration into the body.

However, in order to introduce mummy preparations into clinical practice, it is necessary to conduct experimental and clinical studies on standardized samples of dry mummy extract for all of the listed indications. In this case, special attention should be paid to the scientifically grounded selection of doses of dry mummy extract in each case.

Literature

1. Abdurakhmanov T.R., Vakkasov K.K., Ibragimov N.M. Anticoagulant effect of mummy // Sat. scientific. tr. Krasnodar honey. in-that. - 1971. - T. 33: Problems of blood coagulation and hemostasis. - S. 159-163.
2. Abdurakhmanov T.R., Khashimov T.A. Influence of mummy on blood coagulation // Second scientific. conf. physiologists, biochemists and pharmacologists of the Andijan department of the Uzbek fiziol. Islands dedicated. 50th anniversary of the formation of the USSR: Brief theses. report 24-25 nov. 1972 - Andijan, 1972. - P. 4-5.
3. Abdurakhmanov T.R., Khashimov T.A. The mechanism of the anticoagulant action of mummy // Second scientific. conf. physiologists, biochemists and pharmacologists of the Andijan department of the Uzbek fiziol. O-va, dedicated. 50th anniversary of the formation of the USSR: Brief theses. report 24-25 nov. 1972 - Andijan, 1972. - P. 6-7.
4. Vakkasov K.K. Anticoagulant effect of mummy and its use in treatment deep vein thrombophlebitis of the lower extremities (experimental clinical studies): Author's abstract. dis. ... Cand. honey. sciences. - Stavropol, 1973. -- 19 p.
5. Kozlovskaya V.I., Krasovskaya A.G., Ardelyan V.N. and others. Toxicity of mummy and effect on morphological composition of blood with prolonged oral administration // Mumiyo and its therapeutic application: Abstracts. report 18 Feb 1972 - Pyatigorsk, 1972. - S. 28-30.
6. Frolova L.N., Kiseleva T.L. Biological activity of the mummy. Publication 10. Impact on growth of tumor cells and some blood parameters // Traditional medicine. - 2009. - No. 4 (19). - S. 34-45.
7. Shelkovsky N.A., Savenko V.A. To the question of dosage of mummy in experiments on rabbits // I Inter-republican symposium on the experimental study of mummy: Mater. symposium. - Dushanbe, 1965. - pp. 103-112.
8. Shelkovsky N.A., Shelkovskaya N.K. Changes in the platelet composition of the blood with intravascular administration of various concentrations of mummy extract // I Inter-republican symposium on the experimental study of mummy: Mater. symposium. - Dushanbe, 1965. - P. 136-138.

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