



REGENERATION CHARACTERISTICS OF BURN WOUNDS OF THE PRESERVATION GEL OF THE FIELD BINDWEED EXTRACT

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Abstract:

Currently, in the arsenal of doctors there is a large selection of drugs with regenerative and reparative properties. However, none of them are universal and their effectiveness is far from optimal. This necessitates the search and development of new drugs for the treatment of burn injuries.

Keywords: Medicinal plant, flavonoids, ibuprofen, burns, alkaloids

According to WHO, this pathology ranks third in terms of mortality. At the same time, 840 million people suffer from it every year. Among the methods used in the clinic for the treatment of such burns, drug therapy occupies an important place. It should be taken into account that the body's reaction to thermal damage includes the activation of free radical processes and the increase of lipid peroxidation in various organs, and the resulting arachidonic acid is the precursor of prostaglandins, the main mediators of the inflammatory process. The above-mentioned served as the basis for conducting a separate series of experiments to study the effect of the gel containing the extract of yarrow on the process of thermal injury, the results of which are presented below.

THE PURPOSE OF THE STUDY. A comparative study of the effect of 5% gel containing yarrow extract and 5% ibuprofen gel on wound healing caused by burns.

MATERIALS AND RESEARCH METHODS. The effect of the gel containing the extract of field bindweed on thermal burn injuries was studied. One day before the experiment, the back surface of the rat (4x4 cm) is depilated. In order to facilitate depilation, 8-10 mg of 0.9% sodium chloride solution is injected under the skin. At the same time, the skin is stretched and not damaged during depilation. After a day, a thermal burn is performed with the help of a copper plate heated to 2500, which is installed on the end of an electric boiler. (3,3x3,3 cm) 10 cm at 2 levels for 20 seconds. The shape of the burn was square.

According to the clinical classification of burns, burns of the III A and III B degrees are observed. The results of the experiment are monitored until the skin injury caused by the burn is completely healed. The condition of the wound surface, the condition of the surrounding tissues and the time of epithelization are recorded.

It can be estimated that the gel containing the extract of the sedum with a high AIA will be an important pathogenetic tool in the treatment of thermal

injuries. The analysis of the results of the experimental study conducted in rats with thermal injury showed that the formation of granulation tissue and epithelization began on the 11-12th day. At the same time, in control rats, scabs appeared after wounding, which fell off independently by the end of the first month of the experiment, complete healing of the damaged skin and hair covering of the skin was observed on average 75 days after the beginning of the experiment. Daily treatment of the burn surface of rat skin with gels containing the studied agents resulted in accelerated wound healing.

It is known that in everyday life and especially in production, along with thermal burns, chemical burns are very common, and they differ in the characteristics of the course of the traumatic process. Based on the fact that the gel containing the extract of field bindweed has a high efficiency in the treatment of experimental burn thermal injury, the study of its effectiveness in chemical burns was the purpose of this series of experiments.

The effect of the gel containing the extract of yarrow on chemical burn injuries was studied. One day before the experiment, the back surface of the rat (4x4 cm) is depilated. 2 drops of concentrated hydrochloric acid are dropped on the area of the cleaned skin and spread over an equal area using a glass stick. After 20 seconds, it is washed in running water and dried with a sterile napkin. As a result, according to the clinical classification of burn III degree, the wound is oval and round in shape, redness around the wound, 0.3-0.5 cm blisters are observed. Evaluation of the wound is done on the 5th, 10th and 15th days of the experiment. Burn injuries are done under ether anesthesia.

THE OBTAINED RESULTS AND THEIR ANALYSIS. Thus, in the group of rats treated with the gel containing the *Convolvulus arvensis* extract, the time of scab disappearance was reduced by almost two times (48.5%), and by 22.3% when treated with ibuprofen. At the same time, complete wound healing was reduced by 22.3% in ibuprofen gel, and by 39.1%

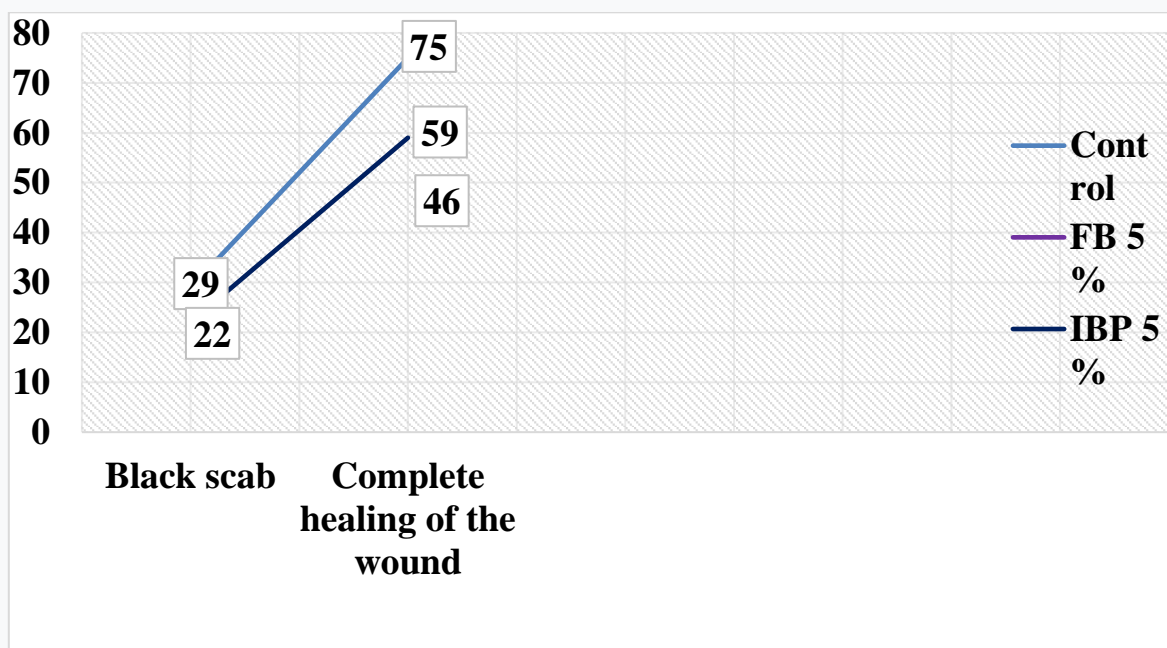


in treatment with a gel containing field bindweed extract. The gel containing the extract of yarrow has also been highly effective in the treatment of chemical burns.

It is logical to consider that the effectiveness of drugs in wound healing probably depends not only

on the biologically active substances contained in the gel, but also on the components that make up the forming substances. To clarify this situation, this series of experiments included a group of rats that received a similar thermal injury in terms of level and area, but were treated with a drug-free gel (placebo).

A comparative study of the effect of 5% gel containing sedum extract and 5% ibuprofen gel on wound healing caused by thermal burns in rats.



According to the data, compared to the placebo group, the duration of scabbing was reduced by 46.0% in rats treated with the gel containing the extract of sedum, and by 18.8% in the case of ibuprofen. , the complete wound healing was reduced by 10%, and by 29.5% in the group treated with the gel containing the yarrow extract. Therefore, the used drugs, when applied locally in the form of a gel, have a one-sided positive effect on the process of thermal injury, which is manifested in the reduction of the time of scabbing and the complete healing of burn wounds. It is worth noting that the gel with the extract of yarrow is slightly superior to the gel containing ibuprofen in terms of its pharmacological activity.

The results of animal studies with chemical burns caused by concentrated hydrochloric acid showed that after applying the acid to the skin, a rounded wound surface was formed. The lower part of the wound was brown and sometimes reddish in color.

Macroscopically the edges of the wound were slightly hanging in the form of red-brown patches of skin. Around the edges of the wound, approximately 9-10 mm wide, there is a zone of hyperemia with several bubbles.

In the control group, the burn wound area decreased by 22.2% by the end of the 5th day of the experiment, and by 33.6% and 47.3% on the 10th and 15th days, respectively. It happened on the 26th day. Daily treatment of the wound with gels containing pharmacological agents led to a reduction not only in the wound area, but also in terms of complete healing of the chemical injury. Thus, in the group of rats treated with the gel containing the extract of the plant, the average area of the burn wound was 27.2% after 5 days, 53.2% after 10 days, and 71.1% after 15 days. statistically significantly decreased. At the same time, the duration of complete wound healing was reduced by 23.0% compared to the control.

Table 1



Wound healing in rats after chemical burns

Groups	The average area of the burn injury, mm ²			
	Initial	Day 5	Day 10	15th day
Burn + NaCl R	41,16±2,99	32,01 ±2,87 >0,05	27,33 ±2,12 <0,02	21,67± 2,04 <0,01
Burn + gel, (plasebo) R R ₁	39,83±2,52	31,67± 1,81 <0,05 >0,05	26,50 ±1,65 <0,01 >0,05	20,33 ±1,59 <0,002 >0,05
Burn + field bindweed 5% R R ₁	39,17±3,58	28,50 ±2,48 <0,05 >0,05	18,33 ±1,27 <0,01 <0,02	11,33 ±1,29 <0,001 <0,01
Burn + ibuprofen 5% R R ₁	40,02±3,49	30,17 ±2,82 >0,05 >0,05	24,18 ±2,18 <0,02 >0,05	15,50 ±1,02 <0,002 <0,05

We found similar effects in the group of rats treated with ibuprofen gel, where the average area of the burn wound decreased by 24.6% on the fifth day of treatment, by 39.5% on the 10th day, and until the end. Day 15 - 61.2%.

As can be seen from the table, compared to the control group, daily treatment of the wound surface with drug-free gel (placebo) was not statistically significant in the reduction of the area of the burn wound, nor in the time of its appearance. The duration of treatment was statistically significantly reduced by 15.2% compared to the control group. It can be seen that in terms of pharmacological activity, the gel with the extract of yarrow is to a certain extent superior to ibuprofen. In these cases, the beneficial effect of the studied gels, especially those containing the extract of yarrow, is not the forming substances, but this substance. allows us to believe that it is related to the effect of biologically active substances in the plant.

SUMMARY

1. The studied gel containing the extract of the sedum was highly effective in wound healing, reducing the time of scab shedding and complete wound healing in animals subjected to thermal and chemical burns.
2. The anti-inflammatory activity of the gel containing the extract of the sedum is considered an important pathogenetic agent in the treatment of burn wounds.

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