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HEMOSTATIC ACTIVITY OF THE HEMOSTATIC DRUG GLILAGIN IN GEL FORM

***Dr. F. A. Sobirova, A. K. H. Islamov, A. V. Filatova and A. D. Matchanov**

Institute of Bioorganic Chemistry Named After Academician O.S. Sodikov of the Academy of Sciences of Uzbekistan, Tashkent, Uzbekistan 700143.

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***Corresponding Author**
Dr. F. A. Sobirova
Institute of Bioorganic Chemistry Named After Academician O.S. Sodikov of the Academy of Sciences of Uzbekistan, Tashkent, Uzbekistan 700143.

ABSTRACT

n this article, the effect of the gel form of Glilagin in the form of a soft drug on the blood transfusion process in intact animals and the effect on the blood transfusion process on foreign blood-borne blood clotting analogues: Hemostatic gauze (Russia), Hemostatic sponge (Russia) and Taxo-Combom (Austria) was found to have a blood transfusion property of 1.5–2.0 times higher in the relative study.

KEYWORDS: lagoden, glilagin, gel, hemostatic, hemostatic gauze, hemostatic sponge.

INTRODUCTION

Among the pressing issues of modern medicine, an important place is occupied by the problem of timely effective stopping of bleeding in the pre-hospital period. The use of a pressure gauze dressing or finger pressure to temporarily stop bleeding when injuring large veins and arteries is ineffective; the application of a hemostatic tourniquet is not always possible due to the peculiarities of the localization of the source of bleeding, and improper application of the tourniquet can lead to such serious consequences as gangrene or ischemic paresis. Given these circumstances, in many countries there is a search for reliable and effective hemostatic agents.[1]

THEORETICAL PART

Gel and liniment forms of drugs are increasingly being used in medical practice (in surgery, phthisiology, allergology, therapy, etc.). Currently, various gels with hemostatic properties

are being produced: Katergel (Austria), Instillagel (Germany), Surzhigel (England), Retragel, Endozhigel (Russia), anti-burn gel (Medgroup LLC), Algigel (Dneprofarm OJSC), Visostat - hemostatic gel (CJSC Meridian).

Hemostatic gels and liniment are widely in demand in many surgical operations. Especially during tonsillectomy, burns, gynecological operations compared with other dosage forms.[2]

The diterpenoid lagochilin contained in plants of the genus Lagohilius has a pronounced hemostatic effect. But it is almost insoluble in water and the bioavailability of lagohilin as a hemostatic is very limited. The method of molecular encapsulation yielded a water-soluble complex of lagohilin with a monoammonium salt of glycyrrhizic acid with high hemostatic activity.[3] Based on this complex, a gel-based hemostatic preparation was developed. In this regard, the question arose about the development of a gel-based external preparation.

The aim of this work is to study the hemostatic effect of the drug “Glilagel” in the form of a gel form, with the inclusion of the monoammonium salt of glycyrrhizic acid with lagohilin in the supramolecular complex

DISCUSS THE RESULTS

To study the hemostatic effect of the drug, 6 gel samples were prepared with a complex of monoammonium salt of glycyrrhizic acid with lagohilin with different concentrations.

Table 1: The effect of hemostatic gel on the time of parenchymal bleeding and the amount of blood loss in rats depending on the concentration of substance in it.

№	A drug, conc. Gillagin%	Bleeding time		Blood loss	
		min	%	g	%
1	Gauze control	2,2±0,2	100	1,414±0,122	100
2	Liniment (base)	1,82±0,10	83	0,720±0,040*	51
3	Gliagin Liniment 0,025	1,5±0,10*	70	0,478±0,02*	34
4	0,05	1,13±0,1*	51	0,348±0,025*	25
5	0,1	1,0±0,10*	46	0,213±0,016	15
6	0,25	0,85±0,04*	39	0,198±0,015*	14
7	0,5	0,71±0,06*	32	0,156±0,012*	11
8	1,0	1,1±0,10*	50	0,303±16*	21,4

As can be seen from the data given in table 1, the most effective were gel samples containing 0.5 and 1.0% of the substance. Under the influence of these samples, the time of parenchymal

bleeding was reduced by 2.6-2.7 times, and the amount of blood loss decreased by 7-9 times. a sample containing 0.5% Gillagin.

Table 2 presents the research data on the hemostatic effect of the study drug and comparison drugs on the model of parenchymal bleeding in intact rats.

A hemostatic drug was compared with commonly used local hemostatic agents: hemostatic gauze (Russia), hemostatic sponge (Russia), and TakhoKomb (Austria).

Table 2: Change in the time of parenchymal bleeding in intact rats under the influence of the study drug and comparison drugs. (M±m; n = 6;)

№ gr.	A drug	Bleeding time in intact rats		Solids weight	
		sec	%	mg	%
1	Gauze control	132±10	100	1414±122	100
2	Gel (base)	109±10	**83**	720±40	**51**
3	Test drug	42,5±2.6*	**32**	156±12	**11**
6	Lagoden 0,5%	39,6±6,0*	30	424±22*	30
6	Hemostatic Sponge	52,8±2,0*	40	466±30*	33
9	Hemostatic gauze	75,2±6,8*	57	707±42*	50
10	Tahoecomb	83,2±6,0*	63	749±44*	53

* P< 0.01 in relation to the control

Thus, the studied drug and 0.5% Lagoden solution turned out to be the most active compound. They exceeded control by 3.0 times in their hemostatic effect, hemostatic sponge by 1.3 times, hemostatic gauze by 1.8 times, and TakhoKomb by 2.0 times.

The hemostatic effect of the hemostatic drug was also tested on the second type of animal - rabbits.

The results are shown in table 3:As can be seen from the data in table 3, the time of parenchymal hemorrhage in the control rabbits was 150±11,4 seconds, and the blood loss was 375 ± 30 mg.

The studied preparation Gliagin gel stopped the time of parenchymal hemorrhage of the liver for 93±8.2 sec or 72% faster than in the control, and the amount of blood loss decreased from 375 ± 30 to 45 ± 4 mg or 88%. While the powder of the substance Gliagin stopped parenchymal bleeding in 30±3,0 seconds or by 93.3%, and the weight of the dry residue from 375 ± 20 mg to 37 ± 2.2.

Hemostatic gauze reduced bleeding time - from 360 ± 30 to 194±18 sec (by 46%), hemostatic sponge in 140±10 sec (by 61%) and TachoComb - in 225±11 sec (by 37%).

Table 3: Change in the time of parenchymal bleeding of the liver in intact rabbits under the action of the Gliagin liniment and comparison preparations (M±m; n =6;).

№ gr.	A drug	Bleeding time		Blood loss	
		sec	%	mg	%
1	Gauze control	150±11,4	100	2600±240	100
2	Test drug	34±2,3	**23**	415±20	**16**
3	Hemostatic gauze	75±6,0	50	1300±120	50
4	Hemostatic Sponge	51±13	34	832±7,1	32
5	Tahoecomb	81±6,0*	54	1248±114	48

* P< 0.01 in relation to the control

From the above research data, the following conclusions can be drawn:

EXPERIMENT SECTION

Rats are anesthetized with ethanol sodium, administered intraperitoneally at a dose of 50 mg / kg. The abdominal cavity is opened with a wide incision, and the liver is carefully secreted. A section of the parenchyma 10-20 mm long and 3-5 mm wide is excised from the edge of the liver. Rabbits were anesthetized with sodium ethaminol administered intravenously at a dose of 35 mg / kg. The abdominal cavity is opened with a wide incision, and the liver is carefully secreted. Using a limiting device (plastic plastic with a round hole in the center), 2-3 wounds with a size of 1,0 cm are applied. x 1,0 cm and a depth of about 0,3 cm. A gauze swab 2,5 cm in size. x 2,5 cm. With gel, they are pressed against the wound surface of the liver and the time of parenchymal bleeding is determined. The criterion for assessing bleeding is the complete absence of blood penetration through the surface and edges of the used hemostatic. At the end of the experiment, the mass of spilled blood (blood loss) was measured. If the drug was a hemostatic gauze, sponge or film, then the weight of the drugs used was measured in its pure form and after soaking them with blood. The difference in weight is blood loss in this experiment. If a powder, liquid or gel is tested, they were applied to a gauze swab, their weight was measured before and after soaking in blood. Calculate the average duration of bleeding for each group of animals, the significance of differences between experience and control and hemostatic activity in percent.[4]

CONCLUSION

Thus, from the above data, we can conclude that the studied drug has a pronounced hemostatic effect. It reduces by 45-70% the time of parenchymal bleeding of rabbits with increased bleeding and 2-3 times the amount of blood loss in the liver, kidneys and spleen. And also, in terms of the effectiveness of the hemostatic effect, the drug surpasses foreign analogues, such as Hemostatic Gauze (Russia), Hemostatic Sponge (Russia) and TakhoKombom (Austria) by 1,5-2,0 times.

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