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STUDY OF THE SENSITIZING EFFECT AND EFFECT ON CARDIAC FUNCTION OF THE DRUGS ESSIN/HP-BETTA-CD AND TAUCIN UNDER EXPERIMENTAL CONDITIONS

Sh.T. Makhmaraimov [1], Z.Kh. Amonova [2], M.Zh. Allaeva [3], D.D. Achilov [4]

1 Senior Lecturer, Department of Pharmacology and Clinical Pharmacology, Termez Branch of Tashkent Medical Academy, Termez, Uzbekistan
E-mail: mahmaraimovshavkat@gmail.com

2 assistant, Department of Pharmacology and Clinical Pharmacology, Termez Branch of Tashkent Medical Academy, Termez, Uzbekistan
E-mail: amonovazuly@gmail.com

3 DSc, Head of Pharmacology department, Tashkent Medical Academy, Tashkent, Uzbekistan
E-mail: juraqulovnam@gmail.com

4 PhD, Associate Professor, Pharmacology department, Tashkent Medical Academy, Tashkent, Uzbekistan
E-mail: dd.achilov88@gmail.com

ABSTRACT

The aim of the study was to investigate the degree of sensitizing action and the effect on cardiac function of the preparations Essin/HP-betta-CD and Taucin on laboratory animals: rabbits and guinea pigs. Determination of the sensitizing effect of the preparation Essin/HP-betta-CD: on the 10th, 15th and 20th days of the experiment after instillation of an aqueous solution of the preparation into the conjunctiva of the eye, the guinea pigs blinked their right eye for a short time. They did not open the right eye. Within 72 hours after exposure to the preparation, itching of the skin of the eyelids, edema of the mucous membrane, infiltrates in the limb were not detected. The effect of Essin/HP-betta-CD on the number of heartbeats, the height of the R wave and the duration of the Q-T, QRS and S-T intervals was studied using electrocardiograms of rabbits under light anesthesia. Electrocardiograms of rabbits were recorded 10 and 30 minutes after administration of Essin/HP-betta-CD. The effect of Taucin on cardiac function was studied using electrocardiograms (ECG) in experimental rabbits under light anesthesia. Heart rate (HR), R wave height, QT, QRS, and S-T intervals were analyzed. Taucin was administered to rabbits orally at doses of 30 and 70 mg/kg once, with ECG readings monitored at intervals of 10 and 30 minutes.

Key words: Essin/HP-betta-CD, Taucin, sensitizing effect.

INTRODUCTION

Research objective. To study the sensitizing effect of Essin/HP-betta-CD and Taucin drugs on laboratory animals: rabbits, guinea pigs and their effect on heart function.

Research material and methods. 1. Determination of the sensitizing effect of Essin/HP-betta-CD: on the 10th, 15th and 20th days of the experiment, an aqueous solution of the drug was instilled into the conjunctiva of the eyes of guinea pigs.

2. The effect of Essin/HP-betta-CD on the number of heart contractions, the height of the R wave, the duration of the Q-T, QRS and S-T intervals was studied using the electrocardiogram of lightly anesthetized rabbits.

3. The allergic effect of Taucin was studied using the "conjunctival probe" method in guinea pigs weighing 300-350 grams.

4. The effect of the drug Taucin on cardiac function was studied using electrocardiogram (ECG) in lightly anesthetized experimental rabbits.

Research results. 1. Sensitizing effect of Essin/HP-betta-CD.

The determination of the sensitizing effect of experimental rats to the new drug was studied using the effect criteria on the 10th, 15th and 20th days of the experiment. After instillation of an aqueous solution of the new drug into the conjunctiva of the eye, the guinea pigs did not open their right eyes for a short time. No itching of the eyelid skin, swelling of the mucous membrane, or infiltrates in the limbus were detected during 72 hours of exposure to the drug. (Table 1).

Table 1.

Expression of sensitization criteria in points during 72 hours of exposure to Essin/HP-betta-CD.

Clinical signs	Clinical symptom level (in numbers/scores)			
	Not available	Weakly expressed	Expressed	Clearly expressed
Allergic reaction				
Itching of the skin of the armpits	0/0	0/0	0/0	0/0
Mucosal edema	0/0	0/0	0/0	0/0
Follicles in the mucous membrane of the eyelids	0/0	0/0	0/0	0/0
Infiltrates in the limb	0/0	0/0	0/0	0/0

2. Effect of Essin/HP-betta-CD on cardiac function.

The effect of Essin/HP-betta-CD on the number of heart contractions, the height of the R wave, the duration of the Q-T, QRS and S-T intervals was studied through the electrocardiogram of lightly anesthetized rabbits. Electrocardiograms of rabbits were obtained 10 minutes and 30 minutes after administration of Essin/HP-betta-CD (Table 2).

Table 2.

Effect of Essin/HP-betta-CD on the electrocardiogram of rabbits.

ECG elements	Control group	Dose of Essin/HP-beta-CD (mg/kg)			
		50		150	
		Inspection time (in minutes)			
		10	30	10	30
Number of heart beats, beats/minute	265	270	268	290*	273*
R, seconds	0,0233	0,0242*	0,0250*	0,0242*	0,0245*
PQ interval, seconds	0,0302	0,0303	0,0302	0,0298*	0,0299
T-P, seconds	0,0551	0,0550	0,0547	0,0538	0,0498*
QRS complex	0,1221	0,1235	0,1227	0,1219*	0,1220*

*p<0,05 – regarding control

3. Evaluation of the allergic effect of the drug Taucin.

The allergic effect of the drug Taucin was studied in guinea pigs weighing 300-350 grams using the “conjunctival probe” method. This test can also determine the state of weak allergization of the skin of animals. Guinea pigs were divided into 2 groups, and the 1st group was given distilled water using a special probe for 20 days, and the 2nd group was given Taucin orally at a dose of 70 mg/kg. A test to determine the state of sensitization was conducted on the 10th, 15th and 20th days of pharmacotherapy. The external condition of the guinea pigs and the condition of the skin were observed for 20 days, and it was concluded that the drug Taucin did not have an allergic effect. The drug was also instilled into their eyes, and the eyes were closed with special patches for 1 day, and on the 2nd and 3rd days, changes in the blood vessels of the sclera, swelling, and tear gland secretion were monitored. It was proven that Taucin at a dose of 70 mg/kg did not have an allergic effect.

Table 3.

Study of the effect of Taucin on cardiac function based on ECG analysis.

ECG readings	Control	Dose, mg/kg, examination time, minutes			
		30		70	
		10	30	10	30
heart rate, rate /minute	265	272	269	270	267
R, seconds	0,0255	0,0252	0,0250	0,0248	0,0245
PQ interval, seconds	0,0310	0,0304	0,0302	0,0308	0,0312
T-P, seconds	0,0555	0,0545	0,0547	0,0552	0,0550
QRS complex	0,127	0,1190	0,125	0,125	0,128

Note: No significant difference was detected compared to control.

4. Evaluation of the effect of the drug Taucin on cardiac function.

The effect of the drug Taucin on cardiac function was studied on the electrocardiogram (ECG) in experimental rabbits under light anesthesia. The heart rate (HR), R wave height, Q–T, QRS and S–T interval duration were analyzed. The drug Taucin was administered orally to rabbits at doses of 30 and 70 mg/kg once and ECG parameters were checked at 10 and 30 minutes intervals. The results from Table 6 showed that the results of ECG parameters under the influence of drug pharmacotherapy did not differ significantly from the results of the control group.

Conclusion. 1. It was proven that the drug Essin/HP-betta-CD does not have a sensitizing effect.

2. According to the results, the number of heart contractions, R, T-R, QRS complex and PQ interval ECG parameters in rabbits under the influence of the drug Essin/HP-betta-CD did not differ from the control group.

3. It was proven that the drug Taucin at a dose of 70 mg/kg did not have an allergic effect.

4. It was shown that the results of ECG parameters under the influence of pharmacotherapy Taucin did not differ significantly from the results of the control group.

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