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DETECTION OF CARCINOGENIC ACTIVITY OF ABAMECUR IN LABORATORY ANIMALS

ANNOTATION

In the conditions of the multi-layered economy that has been created, the insufficiently high veterinary and sanitary level of animal husbandry services in disparate farms has led to an increase in infectious and invasive diseases. A special place among the diseases is occupied by parasitic diseases of cattle, which pose a problem for the intensive development of cattle breeding, especially in farms with a large concentration of livestock. One type of pathogen rarely parasitizes in the body of animals, more often there are several of them, and they are in complex relationships not only with each other, but also with the host, which immediately affects productivity, causing significant economic damage to cattle breeding. The protection of animals from endo- and ectoparasites requires the development of not only more advanced therapeutic and preventive measures, but also the creation of new highly effective, non-toxic, environmentally friendly and easy-to-use medicines - the main task, the relevance of which is beyond doubt. The modern market of antiparasitic drugs is represented by drugs from different groups of compounds. Avermectins have occupied a leading position among them in recent decades. In the conditions of the multi-layered economy that has been created, the insufficiently high veterinary and sanitary level of animal husbandry services in disparate farms has led to an increase in infectious and invasive diseases. A special place among the diseases is occupied by parasitic diseases of cattle, which pose a problem for the intensive development of cattle breeding, especially in farms with a large concentration of livestock. One type of pathogen rarely parasitizes in the body of animals, more often there are several of them, and they are in complex relationships not only with each other, but also with the host, which immediately affects productivity, causing significant economic damage to cattle breeding.

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Key words: *carcinogenicity, laboratory rats, parasites, antiparasitic drugs*.

Introduction. In order to introduce a completely new antiparasitic drug based on avermectin into veterinary practice, its comprehensive study, including pharmacotoxicological evaluation, is necessary. The issue of studying carcinogenic activity deserves special attention, since it is known that the therapeutic agent does not act on the body in isolation, but can affect organs and tissues or other processes in an animal[1-7]. In particular, it is important to know whether the new drug has a carcinogenic effect on the animal's body.

Materials and methods of research. The study of the carcinogenic properties of abamecur was carried out in accordance with the Methodological Recommendations for the study of the carcinogenic properties of Pharmacological and Medicinal Products approved by the Pharmacological State The Russian Federation Committee of the Ministry of Health (Protocol No. 12 of November 27, 1997) and approved by the Department of State Control of Medicines and Medical Equipment[8-12] The studies were carried out on two types of animals: 40 female rats with the initial mass of 150-180 g of the Wistar line and 40 mice of the C57B1/6 line, sensitive to the development of tumors. The animals were divided into 2 groups: the first was administered abamecur in a fivefold increased dose

(1 mg / kg of DV), the second - therapeutic (0.2 mg / kg of DV). The drug was administered orally 2 times a week[13-16]. The control animals were orally injected with distilled water. Observations of animals continued until natural death, and some rats (sick, weakened, with tumors) were killed, the size of the tumor was noted, a macroscopic picture of the internal organs was described and they were fixed in 10% formalin. To clarify the carcinogenic properties of abamecur, another series of experiments was conducted on mice of the C57B1/6 line in order to study the effect of the drug on the development of Lewis lung carcinoma. The mice were carefully selected by body weight (16 g) and divided into 4 groups of 10 pcs. in each. Lewis epidermal lung carcinoma was transplanted to all animals with subcutaneous injection of a 1:1 tumor suspension in a solution of 199 in a volume of 0.5 ml. One group served as a control, and after 48 hours the other two groups began administering abamecur orally at a dose of 0.2 mg / kg of DV (group 2), group 3 mice received abamectin at a dose of 1 mg / kg of DV. The administration of the drug continued daily for 14 days.

By the end of 5 days after the end of the drug administration, the animals were weighed and the size of the tumor was determined.

Results and their discussion. The experiment lasted 2 years. In the control group, at different times of the experiment, starting from 15 months from the beginning of the experiment, 2 rats with spontaneous tumors were identified in the experimental group - 2 rats (Table 1).

When comparing the size and rate of tumor development, the following was noted: the first tumors in rats treated with abamecur appeared simultaneously with the control group.

Table 1 – Life expectancy and causes of death of rats when abamecur is included in their diet

Cause of death	Life expectancy life expectancy, months											
	8	9	11	12	13	14	15	17	19	20	22	Total:
Control												
Abscessing bilateral pneumonia								1	1			2
Abscessing unilateral pneumonia				1								1
Multiple colon abscesses (tumors)							1		1			2
Natural death					1	1			1	1	1	5
Total:				1	1	1	1	1	3	1	1	10
The first experimental group												
Abscessing bilateral pneumonia	1	1		1			1					4
Abscessing unilateral pneumonia					1		1				1	3
Bilateral pneumonia									2		1	3
Natural death			1					1	1	1	1	5
Total:	1	1	1	1	1		2	1	3	1	3	15
The second experimental group												
Abscessing bilateral pneumonia										1		1
Abscessing unilateral pneumonia							1					1
Bilateral pneumonia			1				1			1		3
Multiple colon abscesses (tumors)								1			1	2
Intestinal and limb paresis, intoxication			1					1			1	3
Natural death					1		1		1	1	1	5
Total:			2		1		3	2	1	3	3	15

The rate of development and the size of tumors were approximately the same in the experimental animals[17-24].

Thus, the new drug abamecura on a laboratory model in a therapeutic dose and a 5-fold increased dose does not have carcinogenic activity.

Thus, the new drug abamecur on a laboratory model (rats (at a therapeutic dose (0.2mg per DV) and a 5-fold increased dose (1 mg / kg per DV) administered orally, 2 times a week does not have carcinogenic activity. With subcutaneous injection of Lewis's epidermal lung carcinoma tumor into mice, abamecur at a therapeutic dose (0.2 mg /kg) and a 5-fold increased dose (1 mg /kg by DV) administered orally for 14 days did not affect the development and size of tumors compared with the control. Thus, the new drug abamecura on a laboratory model in a therapeutic dose and a 5-fold increased dose does not have carcinogenic activity

Table 2 – The effect of abamecur on the development of epidermal Lewis lung carcinoma in mice with 5 TV 1/6

Preparation: dose (mg/kg)	Method of administration	Term, nab. (days)	Number of fallen	The volume of the tumor.	% to control	Whole Tumor (gram)
Control	orally	14	30%	6080,25	100	3,23
Group 1	orally	14	20%	5890,25	9,68	3,1
Group 2	orally	14	40%	6190,25		3,33

*As can be seen from the data presented in Table 2, the development of lung carcinoma, on average, was the same in experimental and control animals. Both the size and weight of the tumor in all treated groups were not statistically significant compared to the control.

Thus, the new drug abamecur on a laboratory model (rats (at a therapeutic dose (0.2mg per DV) and a 5-fold increased dose (1 mg / kg per DV) administered orally, 2 times a week does not have carcinogenic activity. With subcutaneous injection of Lewis's epidermal lung carcinoma tumor into mice, abamecur at a therapeutic dose (0.2 mg /kg) and a 5-fold increased dose (1 mg /kg by DV) administered orally for 14 days did not affect the development and size of tumors compared with the control.

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РЕЗИОМЕ

В статье отражены достижения последних десятилетий, которые привели к появлению новых направлений в области производства лекарственных средств, и пересмотру многих теоретических положений и традиционных методик. Лекарственные формы разработки оказывали основное влияние не только на химический состав и физическую активность лекарственных веществ, от которых зависел терапевтический эффект компании, но и на другие факторы, такие как технологии фармацевтического производства, лекарственные вещества

степени дисперсности, их физические условия, лекарственная форма данного типа и т.д. Рациональный способ поиска новых лекарственных средств, а именно противопаразитарных, заключается в изменении структуры молекул известных химических соединений, например, авермектина, и их адаптации – усиления желаемых и уменьшение побочных эффектов в лекарственной форме.

ТҮЙІН

Мақалада дәрі-дәрмектерді өндіруде жаңа бағыттардың пайда болуына, бірқатар теориялық ережелер мен дәстүрлі әдістерді қайта қарауға және қайта бағалауға әкелген соңғы онжылдықтардың жетістіктері көрсетілген. Дәрілік формалардың дамуына дәрілік заттардың емдік әсерінің химиялық құрылымы мен физиологиялық белсенділігіне ғана емес, сонымен қатар дәрі-дәрмектерді дайындау технологиясы, Дәрілік заттардың дисперсия дәрежесі, олардың физикалық жағдайы, дәрілік форманың түрі және т. б. сияқты басқа факторларға тәуелділігін анықтау айтарлықтай әсер етті. Жаңа дәрі – дәрмектерді, атап айтқанда антипаразитті іздеудің ұтымды жолы белгілі химиялық қосылыстардың молекулаларының құрылымын өзгерту болып қала береді, мысалы, авермектиндер және оларды оңтайландыру-дәрілік форманы құру арқылы қажетті және жанама әсерлердің күшеюі.

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ГЕМАТОЛОГИЧЕСКИЕ И БИОХИМИЧЕСКИЕ ПОКАЗАТЕЛИ КРОВИ СУЯГНЫХ ОВЕЦ АКЖАЙКСКОЙ МЯСО - ШЕРСТНОЙ ПОРОДЫ ДО И ПЕРЕД ПРИМЕНЕНИЕМ ОРГАНИЧЕСКОГО ПРЕПАРАТА HEMATOLOGICAL AND BIOCHEMICAL BLOOD PARAMETERS OF SUYAG SHEEP OF THE AKZHAİK MEAT AND WOOL BREED BEFORE AND BEFORE THE USE OF THE ORGANIC PREPARATION

Аннотация

В данной статье рассмотрены гематологические и биохимические показатели крови суягных овец акжайкской мясо-шерстной породы до и перед применением органического препарата в различных дозах. Данное исследование выполнено на базе хозяйств, принадлежащих КХ «Хафиз», КХ «Айхан», КХ «Ахметов» и ОПХ «Атамекен» Западно – Казахстанской области Республики Казахстан.

Объектом опытов являлись овцематки акжайкской мясо - шерстной породы в возрасте трех лет. Исследование проводилось в сентябре после отбивки ягнят. С учетом принципа аналогов были сформированы четыре группы животных ($n = 25$). Всем животным опытных групп однократно внутримышечно вводили: первая группа – витаминно-минеральный