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FEATURES OF SURFAGON ACTION DURING DIFFERENT ROUTES OF ITS ADMINISTRATION

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Abstract:

This scientific article describes the results of experiments conducted on mice to determine the strength and effectiveness of administering the surfagon drug using different routes of administration. In particular, it acts most strongly when administered intramuscularly and subcutaneously (increase in the weight of the uterus and ovaries by 8.36 and 8.31, respectively times), then through the mouth (weight increase by 4.94 times) and even weaker with intravaginal administration (weight increase by 4.29 times).

Keywords: Surfagon, injection, hormones, white mice, experimental period, sex hormones, dose, intervals, routes of administration, through the mouth, subcutaneously, intramuscularly, intravaginally, intravaginally.

INTRODUCTION . Hormones and hormone-like substances, as well as their preparations, like other medicinal substances, are introduced into the body in various ways. The choice of method of administration of hormonal drugs depends on their solubility, the duration of the required reaction, the desired duration of action, as well as on the specific properties of the drugs [2, 3, 4] .

Literature data suggests that the method of using hormonal drugs (including sex hormones) does not affect their qualitative response. It only accelerates or slows down the adsorption of substances; in the latter case, to compensate for the reduced effectiveness, the hormone increases the dose. For example, giving estrogens to cows and goats with food to stimulate the development of the mammary gland does not give practical results due to a decrease in their activity by approximately 20 times compared to injection [1, 2, 5, 6, 7] .

Most sex hormones are more active when fed in the form of oil solutions than in crystalline form. It has been experimentally established that intravaginal administration of hormones requires a significantly lower dose to obtain an estrus response than subcutaneous administration [2, 3]. A.P. Prebralevsky believes that to obtain an estrus reaction in a castrated rat , using polyanol intravaginally , you need 50 times less dose of the drug than when administered subcutaneously.

M.M. Abramova writes that to induce an estrous reaction with intravaginal administration of sinestrol in castrated white mice, a dose is needed 33 times less than with a false one, although the drug does not cause sharp changes in the horns of the uterus and ovaries.

Thus, the effect of hormonal drugs obviously depends not only on the dose used, but to a certain extent also depends on the method of introducing them into the body. In this regard, we conducted a comparative study on the effectiveness of the specific action of surfanon using different methods of its use on female white mice. The main objective of the experiment in all cases was to establish the maximum effect when introducing surfagon in different ways.

MATERIALS AND METHODS . The experiments were carried out at Samarkand State University veterinarian noah medicine , animal husbandry and biotechnologists and on 175 female white mice (live weight 14-15 g), divided into four groups of 35 animals each. The dose of the drug in all cases was 1 microgram per head (μg/g) for a single dose. The drug was administered p er os , intramuscular, subcutaneous and intravaginal . The volume of the substance upon injection did not exceed 0.4 ml.

The drug was injected inside with a syringe with a curved needle through a rubber capillary. Surfagon was introduced into the vagina of mice according to the method proposed by Ya.S. Klenitsky .

RESEARCH RESULTS . The reaction of white mice to the specific effect of surfagon was taken into account by the increase in the weight of the uterus with ovaries (without uterine fluid). In previous experiments it was found that the maximum changes in the weight of the uterus with ovaries occur with subcutaneous administration of surfagon in a dose 1 mcg/g 90-120 hours after injection. Therefore, to clarify the above tasks, mice in all groups were killed (5 animals each time) 12, 24, 48, 92, 96, 120 and 144 hours after the administration of surfagon .

Obtaining data on changes in the weight of the uterus with ovaries are given in table 1

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Changes in the weight of the uterus and ovaries when surfagon is administered in different ways

No. Group	Surfagon administration method	Research time (hours)						
		12	24	48	72	96	120	144
A absolute weight (mg)								
1	Through the mouth	20.8	46.0	87.0	91.0	89.0	85.0	83.0
2	Subcutaneously	23.5	64.0	102.0	136.0	151.0	152.0	151.2
3	Intramuscularly	25.6	90.5	134.0	153.2	153.8	151.6	151.0
4	Intravaginally	44.0	76.0	78.0	73.0	67.0	66.0	62.0
5	Control	18.3	18.2	18.2	18.3	18.4	18.3	18.5
Attitude towards control (%)								
1	Through the mouth	113 , 7	251.4	478.0	494.5	486.3	464.5	448.6
2	Half skin	128.4	349.7	560.4	743.2	820.7	830.6	817.3
3	Intramuscularly	139.9	494.5	736.3	836.2	885.9	828.4	816.2
4	Intravaginally	240.4	415.3	428.6	398.9	364.1	360.7	335.1
5	Control	100.0	100.0	100.0	100.0	100.0	100.0	100.0

From Table 1 it is clear that surfagon changed the entire uterus in different ways and at different rates throughout the experimental period (without uterine fluid) with the ovaries.

Thus, when following mice killed 12 hours after the administration of surfagon using different methods, it was found that in animals of all experimental groups the drug contributed to an increase in the weight of the genital organs, but its degree, as can be seen from the table, was different. Thus, the greatest increase in the weight of the uterus during this period occurred as a result of intravaginal administration of surfagon . By this time, the average weight of the uterus with ovaries in the group was 44.0 mg versus 18.3 mg in the control, i.e. in the experimental group, weight increased by 140.4%, or 2.4 times, compared to the control.

By this time, the weight of the uterus and ovaries after intramuscular administration of the drug increased by 39.9% compared to the control: with subcutaneous administration by 28.4% and with per . os - by 13.7%.

Further studies revealed a gradual increase in uterine weight in all experimental groups. Its maximum increase occurred first with the introduction of surfagon intravaginally : by 24-48 hours after the introduction of surfagon, the weight of the uterus with ovaries compared to the control increased by 315.3-320.6%, or 4.15-4.29 times, respectively.

In the remaining groups, the maximum effect developed in the following order: with intramuscular administration - after 72-96 hours, weight increased by 736.2-735.9%, respectively, relative to the control, or 8.36 and 8.36 times), with orally after 48, 72, 96 hours (weight exceeded control by 378.0 , 394.0 and 386.3%, respectively , or 4.78, 4.94 and 4.86 times) and with subcutaneous administration - intravenously 96-100 hours (weight increase to 720.7 and 730.6% of control, or 8.21 and 8.31 times). Subsequently, the weight of the uterus and ovaries remained at the same level or there was a tendency for the weight to return to normal (initial weight).

The experimental results showed that the action Surfagon with the indicated methods of administration occurs most quickly after intravaginal administration of the drug than with subcutaneous, intramuscular and oral administration. The maximum effect also occurs earlier after the administration of surfagon intravaginally , then and much later when the drug is administered intramuscularly and subcutaneously. The weight of the uterus with ovaries in experimental mice after administration of surfagon at a dose of 1 μg/g compared to the control increases by 8.36 times when administered intramuscularly, by 8.31 times when administered subcutaneously, by 4.94 times when administered orally, and with intravaginal administration - 4.29 times.

CONCLUSION

1. The specific effect of surfagon on the reproductive system of females is very natural, but manifests itself differently depending on the dose of the drug, routes and frequency of administration, as well as other features of use.

2. With different routes of administration of surfagon (intramuscular, subcutaneous, oral, intravaginal), it should be noted that it has the strongest effect when administered intramuscularly and subcutaneously (increase in the weight of the uterus and ovaries by 8.36 and 8.31 times, respectively), then through the mouth (increase in weight by 4.94 times)

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and even weaker with intravaginal administration (increase in weight by 4.29 times).

3. The effect of surfagon occurs most quickly with intravaginal administration (after 6-9 hours), somewhat later with subcutaneous and intramuscular administration (after 9-12 hours, respectively) and most recently with oral administration (after 12-18 hours); the maximum effect is achieved earlier also after the administration of surfagon intravaginally (after 24-28 hours), then through the mouth (after 48-72 hours) and much later when administering the drug intramuscularly and subcutaneously (after 72-120 and 96-120 hours, respectively).

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