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DIFFERENT TREATMENT METHODS EFFICIENCY OF COWS WITH OVARY HYPOPLASIA

Розроблені нові методи лікування корів з гіпоплазією яєчників. Встановлено, що комплексне лікування корів з гіпоплазією яєчників забезпечує відновлення статевої циклічності у 26,0 – 90,0 % тварин та заплідненість 11,1–66,6 %. Найкраща ефективність лікування корів була після внутрішньояєчникового введення фолігону у дозі 100 МО: статеву циклічність виявили у 90,0 % корів за високого рівня заплідненості (66,6 %), що вірогідно ($p<0,001$) більше, порівняно з контрольною групою. Тоді як підвищення дози внутрішньояєчникового введення фолігону до 200 МО знижує показники заплідненості на 55,5 % ($p<0,01$), порівняно з дозою 100 МО.

Ключові слова: гіпоплазія яєчників, метод лікування, корови

Statement of the problem. Ovary hypoplasia is the disease, characterized by anafrodysia, gonads size reduction (less then 2,0 x 1,5 x1,5 cm.), smooth surface, absence of yellow body and vesicular follicles, sensed by palpation. [1–5]. Such disease is registered in 33 % of cows, mainly in young cows with first or second lactation, under defective feeding and the poor conditions [4-6]. By our data [4], unilateral ovary hypoplasia occurs in 78.2 % of ill animals, and bilateral in 21.8 %. The other ovaries in cows with unilateral hypoplasia were in such condition: hypo function – 51.2 %, persistent yellow body – 46.5 %, cyst – 2.3 %.

Analysis of recent research and publications. Different authors [3, 5-9] recommend using histic, vitaminous, biologically active, immune modulating and hormone preparations for folliculogenesis and sexual recurrence renovation for cows with ovary hypoplasia. It is mentioned, that treatment efficiency of cows with ovary hypoplasia improves through the simultaneous therapeutic influence on the uterus [10]. A number of authors [3, 11, 12] state that ovary hypoplasia treatment methods were ineffective, because the excitation stage was seen in 10-25 % of cows under low fertilization. The disease prevention is possible only due better feeding and keeping conditions and preparation of healthy constitution type repair heifers [2]. That's why there was a long-term (more than 100 days after the calving) infertility, that causes great economic losses.

The aim of our work was to develop new treatment methods of cows with ovary hypoplasia and to study their efficiency.

Materials and research methods. The unfertilized cows of Ukrainian black-and-white dairy breed were the material for investigation, They belong to agrarian firm "Peremoga" in Kagarlyk district in Kyiv region.

The diagnoses on ovary hypoplasia were carried from 35 days after the calving. The transrectal gonads' testing was done. There was taken into account their form, size, consistence, painfulness, functional formations (vesicular follicles and yellow bodies). While exploring the uterus conditions, the topography, painfulness, consistence and rigidity were taking into account. Besides the transrectal valuation of genital morphofunctional condition in infertile cows there was also used sonographic method of diagnostics [13].

To determine the different treatment methods efficiency by the analog principle, there were organized 4 research and one control group. Treatment methods are given in the table 1.

Table 1 − **Treatment methods of cows with ovary hypoplasia**

Animal groups	Treatment methods
1.	Intraperitoneal introduction of 10 ml. 10% novocaine, 3 times with 48 hours interval. Intramuscular application of katosal, in dose of 15 ml. 3 times with 48 hours interval, with simultaneous application of novocaine solution. One intramuscular application of medication "Vitamin E + Se" 20 ml, during first application of novocaine solution.
2.	Intraperitoneal introduction of 10 ml. 10% novocaine, 3 times with 48 hours interval. Intramuscular application of katosal, in dose of 15 ml. 3 times with 48 hours interval, with simultaneous application of novocaine solution. 100 mho of folligon intraovaryly, under the ultrasonic control, in 48 hours after the end of pathogenetic and stimulating therapy course.
3.	Intraperitoneal introduction of 10 ml. 10% novocaine, 3 times with 48 hours interval. Intramuscular application of katosal, in dose of 15 ml. 3 times with 48 hours interval, with simultaneous application of novocaine solution. 100 mho of folligon intraovaryly, under the ultrasonic control, in 48 hours after the end of pathogenetic and

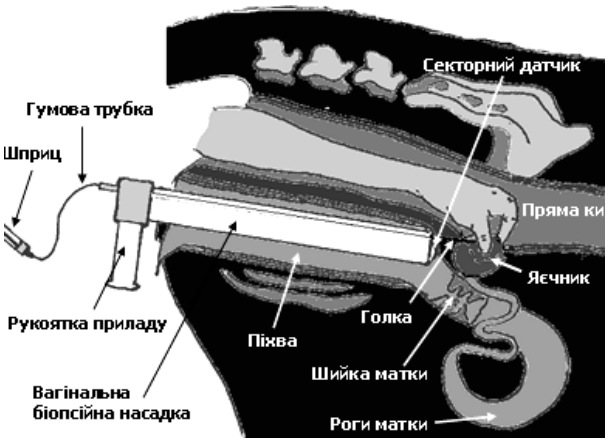
	stimulating therapy course.
4.	One injection into ovary under ultrasonic control.
5.	Control (no treatment)

The treatment began in the day of establishing diagnosis. To apply the intraovary folligon injection, the sector sensor was used with oscillation frequency 5 MHz, the ultrasonic apparatus " Scanner" 100S, in B – regime, and vaginal bioptic nozzle (picture 1).

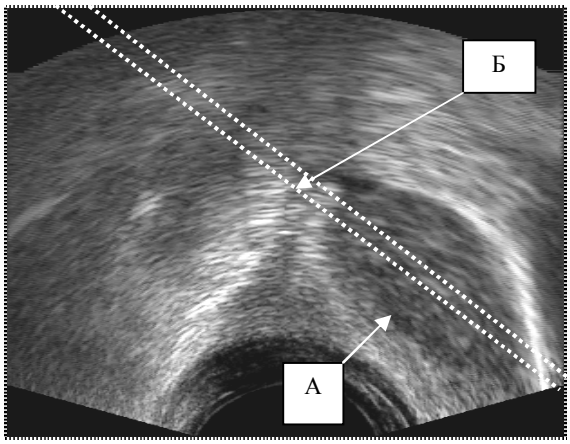
Prior to application, the sector sensor was placed in probe holder of vaginal bioptic nozzle, which was placed into metal nozzle frame. After fixing needle case, the handle was fixed with a bolt. The needle was put on holder, and polystyrene pipe – to the other end, which then was connected with the syringe. The needle holder has a marker which shows when needle is outside of the device under condition that it is 50 mm long. Before conducting investigation, the nozzle was covered with sterile polyethylene cover, moisturized by physiological solution with temperature 38-40º C. The rectum was cleaned and after sanitary treatment of external vulvar lips surface and perineum, the nozzle in sterile polyethylene cover was cautiously inserted into vagina in cephalo-dorsal direction up to the stop by vagina wall and uterus cervix.

The ovary was moved to the front nozzle end, which was in the vagina, by the other hand through rectum.

Then the bioptic line was activated by macro command first "func" then "freq". Then the ovary was placed in such a way that the bioptic line went through its structures (Picture 2).



Picture 1 – **The scheme of folligon intraovary introduction method**.



Picture 2 – **Ovary and bioptic line**
A – ovary, B – bioptic line.

After inserting needle into ovary, the folligon was introduced with the help of syringe and polystyrene pipe.

Sex cycle excitement stage was established by clinical visual way during 90 days of experiment after the end of treatment course. Insemination was done by the cervical method with rectal fixation of uterus. Pregnancy diagnostics was made from the 35 day after insemination by ultrasonic apparatus.

Research results. Treatment methods influence on reproduction function renewal of cows with "ovary hypoplasia" diagnosis in the first-fourth experimental groups is given in Tables 2-4.

Table 2 – **Sex cycle indications in cows during 90 days of the experiment**

Days after treatment	Animal groups									
	first		second		third		fourth		control	
	n	%	n	%	n	%	n	%	n	%
up to 30	6	40,0	5	50,0	9	90,0***	2	40,0	3	20,0
31-60	5	33,3	3	30,0	0	-	2	40,0	0	-
for 60	11	73,3**	8	80,0**	9	90,0***	4	80,0**	3	20,0
61-90	1	6,7	1	10,0	0	-	0	-	1	6,7
Altogether 90	12	80,0**	9	90,0***	9	90,0***	4	80,0*	4	26,7
M±m	33,5±6,1		28,4±7,3		11,7±1,8		23,5±9,5		34,0±14	

Note: * – $p < 0,05$, ** – $p < 0,01$, ***- $p < 0,001$ comparing to the control group

Table 2 shows that during 30 days after the experiment the biggest frequency of excitement stage (90%) was seen in cows of the third group, which by 50% higher, comparing to the first and the fourth groups, by 40% – with the second and by 70% ($p < 0,001$) – with the control group. During 90 days of the

experiment the first experiment group showed excitement stage in 80% cows, which is by 53,3% ($p < 0,01$) higher, comparing to the control group. The second experiment group showed excitement stage in 90% cows, which is by 63,3% ($p < 0,001$) higher, comparing to the control group, and by 10% higher, comparing to the first and the fourth groups.

Sex cycle excitement stage in cows showed on average in experimental and control groups during 33,5; 28,4; 11,7; 25,3; and 34,0 days respectively.

Different methods for cows' treatment in the experimental groups was estimated by a number of cows, which became pregnant in different time after treatment (Table 3).

As Table 3 shows, during 30 days of experiment pregnancy happened in the first, second, third and fourth experiment groups with 20,0 30,0 10,0 and 25,0 % of cows. In the period from 31 to 60 days the first and the second groups were added with 20,0 and 30,0% more pregnant cows.

Table 3 – **Number of pregnant cows in groups during 90 experimental days**

Became pregnant	Animal groups									
	first		second		third		fourth		control	
	n	%	n	%	n	%	n	%	n	%
up to 30	3	20,0	3	30,0	1	10,0	1	25,0	0	-
31-60	3	20,0	3	30,0	0	0	0	-	0	-
for 60	6	40,0**	6	60,0***	1	10,0	1	25,0	0	-
61-90	0	-	0	-	0	0	0	-	0	-
Altogether 90	6	40,0**	6	60,0***	1	10,0	1	25,0	0	-

Note: ** – $p < 0,01$, ***- $p < 0,001$ comparing to the control group

During the experiment time the second group 60,0% cows became pregnant, which is 20% higher comparing to the first group, by 50% – with the third, by 35% – with the fourth, and by 60% ($p < 0,001$) – with the control one. Not any cow in the control group became pregnant during the experimental period.

Cow impregnation rate was different in groups, depending on the treatment scheme (Table 4).

Table 4 – **Cow impregnation rate by group during 90 experimental days**

Impregnated cows, days	Animal groups									
	first		second		third		fourth		control	
	n/n_1	%	n/n_1	%	n/n_1	%	n/n_1	%	n/n_1	%
up to 30	3/6	50,0***	3/5	60,0***	1/9	11,1	1/2	50,0*	0/3	-
31-60	3/5	60,0***	3/3	100***	0/0	-	0/2	-	0/0	-
for 60	6/11	54,5***	6/8	75,0***	1/9	11,1	1/4	25,0	0/3	-
61-90	0/1	-	0/1	-	0/0	-	0/0	-	0/1	-
Altogether 90	6/12	50,0***	6/9	66,6***	1/9	11,1	1/4	25,0	0/4	-

Note: n – number of pregnant cows, n_1 – number of impregnated cows
** – $p < 0,05$, ***- $p < 0,001$ comparing to the control group

As Table 4 shows, during 30 days of experiment impregnation in the first, second, third and fourth experiment groups was higher by 50,0 ($p < 0,001$), 60,0 ($p < 0,001$), 11,1 and 50,0% ($p < 0,05$), comparing to the control group. In the period from 31 to 60 days the second experimental group showed 100% pregnancy, which is by 40% higher, comparing the first group and presumably ($p < 0,001$) – with the control group. In the period from 61 to 90 days of experiment not any cow became pregnant. For the time of experiment the highest impregnation rate (66,6%) was seen in the second experimental group, which is by 16,6%, 55,5% and 41,6% higher, comparing to the first, third and fourth experiment groups respectively and presumably ($p < 0,001$) higher, comparing with the control group.

Summary 1. Complex treatment of cows with ovary hypoplasia ensures renewal of sex cycle for 26,0 – 90,0 % of animals, and impregnation rate of 11, – 66,6 %. The highest treatment efficiency for cows was after the intraovary folligon injection in the dose of 100 mho: the sex cycle was established in 90,0 % cows under high impregnation level (66,6 %), which presumably ($p < 0,001$) higher, comparing with the control group.

2. Increase of the intraovary folligon injection dose to 200 mho decreases impregnation level by 55,5% ($p < 0,01$), comparing with the dose of 100 mho.

Approbation of intramuscular injection of folligon and surphagon on the background of pathogenic therapy, while treating cows with ovary hypoplasia.

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Эффективность разных методов лечения коров с гипоплазией яичников

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Разработаны новые методы лечения коров с гипоплазией яичников. Установлено, что комплексное лечение коров с гипоплазией яичников обеспечивает восстановление половой цикличности в 26,0–90,0 % животных и оплодотворённость 11,1–66,6 %. Лучшая эффективность лечения коров была после внутрияичникового введения фолигона в дозе 100 МЕ: половую цикличность определили в 90,0 % коров с высоким уровнем оплодотворённости (66,6 %), что вероятно ($p<0,001$) больше по сравнению с контрольной группой. Повышение дозы внутрияичникового введения фолигона до 200 МЕ понижает показатели оплодотворённости на 55,5 % ($p<0,01$) по сравнению с дозой 100 МЕ.

Ключевые слова: гипоплазия яичников, метод лечения, коровы.