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VALUING OF USEFULNESS OF THE MILKING COWS TO BECOME DONORS-RECEIPIENTS OF THE BEFORE-IMPLANTANT EMBRYOS

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We have adducted the results of the examination by touch of the morphofunctional condition of dairy cow ovary and luteogenesis for the selection of the animals with the aim of embryodonation. In 9-14% of the cows we have seen deficiency in the formation of luteal state from the 5th till the 15th day because of the absence of the development in ovary a yellow body .Also 17-43% of them were unable for embryodonation because of the kistosis degenerations of the follicle: the embryos flushed out of them on the 7th-8th day after polyovulation had deep morphological defects and were lacking vitality.

Key words: cow, sexual cycle, luteal cycle, yellow body, follicle kistosis (cyst), embryo, embryodonation.

Positing of the problem. The effective creation of the mother live stock of the cattle-breeding is a basic part of the profitableness of milk cattle-breeding. During the last years in the milk cattle-breeding we can see the essential growing of the productivity of milking cattle stocks, but the exponents of the reproduction have the constant tendency to come down.

The low fertilization of cows characterizes with polyetiological factors, though all of them influence on the formation of the different periods of the sexual cycle. The role of ovary in these physiological changes during the sexual cycle has not been studied enough and needs the deeper explorations. The knowledge of the regularity of the going of luteal phase (state) of the cycle gives the opportunity to rule effectively with the reproductive function of cows and heifers.

The analysis of the main researches and publications, in which they have begun to decide this problem. Those who studied the sexual cyclist of the cows and heifers explored only the state of the sexual excitement (1-6, 9, 13, 16) and the display in this time the defects of sexual cycles of the cows (11-13). These processes are connected with the ripening of the dominant follicle in ovules, formation and growing of the yellow body (1-3, 16) accessible for clear palpation from the 5th-6th day, and the secretion of the hormones of preservation of pregnancy - progesterone, cause of the absence or lack of it the embryo dies inside (13-16). However, these questions have not been studied enough. Specifically, nowadays there is not a reliable method for the selection of the cows for embryodonation, as this exponent has the important individual variations (4, 15). Numerous factors, which influence on the level of embryo reproductivity and quality of cows-donors, have been researching during long period (15), but we have not learnt numerous biological regularities among cows processes of folliculo-, luteo- and

embryogenesis, the understanding of which may help to increase the results of reproductivity of cattle's includingly with help of transplantation of embryos (TE)

The aim and task of the exploration. The aim and task of the exploration were the learning of the connection between the structure-function of the ovaries and the ability of the cows to be donors-the recipients of embryos. The tasks of the exploration were

1. To definite with the rectile palpation morphofunctional state of the ovaries after the end of sexual excitement during the luteal phase.
2. To explore the character of honadopaty, which are typical for luteal phase of the sexual cycle of milking cows.
3. To research the influence of cyst degeneration of follicle into the further embryoproduction of highly productive persons.

The materials and methods of the explorations. The ability of the cows of main milking stock for embryodonation and to be the recipients have explored during 2012 year on the milk stock farms N 1 – SPP `RVD-Agro` in Cherkasy region and N2 PAT «Poltavaplemservice» we have examined the cows of Ukrainian black-dappled and red-dappled species, aged from 3 till 7 years old, weight from 400 till 550 kg (table 1).

We explored the sexual cycle of cow with the standard clinical-gynecological methods. During the palpation the ovary of the cows at the state of sexual calm we definite the presence of the typical symptom of normal going of luteal phase-yellow body. In the case of its absence we explained the character of pathological changes in ovary. We added the palpator diagnostics of ovary with the method of visualization of the results (10, 11). Because of rectal palpation of functional formation of the ovary as method of exploration of animals ``in vivo`` has its limit of the using, the examinations were done from the 5th till the 35th day after the artificial insemination (AI). We also valued the number of the embryos taken during transcervical flushing, and their quality by morphological features (6, 15).

1. The number of the examined cows and the structure of their examination

N of the farm	The productivity of the stock, kg of milk	The count of the examined cows , heads	The count of the learnt cycles	The count of the cows, heads		
				Which had been inseminated artificially	To them embryos had been transplanted	From them embryos had been flushed
1	6000	65	68	60	x	5
2	8000	27	75	x	4	4
Together	-	92	143	60	4	9

The casting, preparing, hormonal stimulation AI during the poly-ovulation and non-surgical washing of the embryos from the cows-donors we made accordingly with the instruction with

modifications, which had been done at the Laboratory of transplantation of embryos 'Poltavaplemservis' (4-6).

The results of our explorations showed, that during phase of sexual calmness, yellow bodies were found only inside 53% of the cows. For example during the period between the 5th and the 15th day after an artificial inseminate only 43% of the cows from the 1st farm had a yellow body of ovary. The more highly productive cows from the 2nd farm in 62% explored cases had a morphologically typical yellow body of the cycle that is more than 18% than in the 1st farm.

Among 134 cows inside 20% of them ovules were less than normally and had no features of luteogenesis that means about their hypotrophical processes. The features of follicle cysts, single or doubled and big by size (from 3 to 6 sm in diameter) or numerous small (from 1.5 to 1.0 sm) were founded the most during the period from the 5th till the 15th day inside the cows from the farm N 1 - 43%, includingly inside of 7% polycyst of the both ovaries was found. Inside of the cows of the farm N 2 the cyst degenerations of follicles during this period we have founded less than twice and a half. The same time a tendency of the pathological defects of follicle genesis among the cows with high milk productivity is present-our explorations showed the presence of 12.6% cycles with the features of poly cyst, that means about deep degenerative defects inside the ovary tissue, the cause of that is the common departure in homeostasis and polymorbidity, they are typical for such animals (7, 9, 11).

The donor of embryos can be potentially every cow, which has not loose the reproductive function of ovary. Though, there is a mind, that a positive reaction of the cow on the first hormone stimulation for poly ovulation has a tendency to improve the next high level of the embryo producing ``in vivo`` in the case of non-surgical methods of taking a donor out of the uterine horns.

We have discovered the clear tendency of dependence of the appearing of defective embryos from the presence during the previous cycles the cyst degenerations of the ovule follicles (table 2). The hormone processing of all the cows – the potential embryo donors we have researched after the symptomatic curing, control of the regeneration of the sexual function and the presence of the morphological typical yellow body of the inductive cycle. Among 9 highly productive cows (8-10 thousand kg milk during one lactation) after the doing of standard procedures (6) and washing the embryos we have selected 2 groups of persons. The 1st of them (consisted of 5 heads) had high embryo productivity and the 2nd (4 heads) did not give any qualitative embryo and was not useful for further using as embryo donors.

The previous step by step exploration has shown that the 2nd group of the cows had during the examined period (the term that is equivalent to the duration of 3 sexual cycles) 2 or 3 non perfect sexual cycles with symptoms of follicle cyst of ovaries.

2. Control of level of embryoproductivity

N of the farm	The exponent	The characteristics of the previous function ovules` state of the cows- the potential embryo donors	
		Normal ovules state	Cyst follicles degeneration
1	Number of the heads	3	2
	Number of the qualitative embryos	44	0
	Number of qualitative embryos per one donor	14.7	0.0
	Number of the degenerative embryos and ovules	9	2
	Number of the degenerative embryos per one donor	3	1
2	Number of the heads*	2	1
	Number of the qualitative embryos	11	0
	Number of the qualitative embryos per one donor	5.5	0
	Number of degenerated embryos and ovules	4	9
	Number of degenerated embryos and ovules per one donor	2	9

*One cow did not have a reaction to hormonogramma

In the group with a high level of the getting the qualitative embryos cyst was met not more than one time during the same period.

In the cow group on the 2nd farm we had left for the embryo transplantation, there were selected with some features (4, 6, 10) four recipients and we have done the trans cervical transplantation of the newly got fresh transferable embryos. We also have discovered inside of the three cows (75%) of the group the successful acceptance of the embryos and further appearance of healthy calves-transplantants. So, during the next phases of the explorations, specifically -`in vitro`-, we have confirmed the real value of the selection of the donors and recipients, and this was confirmed with the pregnancy of the cows. The results of our step by step examination by touch (in vivo)of the functional ovule creations inside cows which were confirmed by the laboratory mark of the morphological quality of the embryos `in vitro` do not coincide with the minds of some authors, who believe, that the results of rectal palpation have low reliability (8).

Summary:

1. Using the palpator examination of the cow ovaries of cows which give milk, we have discovered the defective in formation of the luteal state of the sexual cycle because of the absence of a yellow body in 9-14% and follicle cyst in 17-43% of the cows.

2. We have confirmed effectiveness of the examination by touch of the follicle degenerations in ovaries, as the methodical way to the previous selection of the highly productive cows with the aim of embryodonation.

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