

## **The influence of SIMPANORM (carazolol) application on reproductive indexes in sows**

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Procedure of insemination as well as delivery and post delivery period release in sow stressful reaction caused by effect of many environmental and endogen originated factors. Some mediators of stress such as adrenaline and noradrenaline under effect of stressful factors are released. They suppress muscular activity of sexual organs, deteriorating transport of semen towards fallopian tube of the uterus (3) as well as lengthening duration of delivery (5). Beta-adrenergic specimens are applied in order to eliminate negative effect of catecholamine. They slow down effect of sympathomimetics compounds in cell membrane receptors (1,3,4). Possibility of application of beta-blocker (propranolol) in female, as blocker adrenergic receptors revealed Rauluszkiewicz and al. (4). Bostedt and Rudolff have proved the same effect of carazolol (1).

**The purpose of this field trial was to investigate the influence of carazolol (SIMPANORM Fatro) on reproductive and production indexes in sow.**

### MATERIAL AND METHODS

Investigations were carried out in 2002 in pig farm on 160 cross-breed multiparous sows, which have earlier got 3 or 4 parturition. Selected and random animals were divided into four groups.

80 sows were used in the first research task. These animals were divided into two groups: experimental group number 1 - GD1 and control group 1 - GK1. Group GD1 and GK1 included 40 sows per group. After weaning of piglets sows were moved into single pens and were observed for oestrus signals. Oestrus signs occurred usually 5 - 6 days after weaning of piglets.

Insemination of sows performed in time of sexual tolerance with semen dose 3 - 3,5 mld spermatozoa in 100 ml. Reinsemination of sows was made after 16 - 18 hours. Sows in group GD1 received carazolol at a dosage of 1 mg / 100 kg b.w. the product used was SIMPANORM (Fatro, Italy; 0.5 mg carazolol / ml) in the form of single intramuscular injection in dose of 2 ml / 100 kg b. w., (1 mg of carazolol on 100 kg b.w.) 3 - 4 hours before artificial insemination. All

sows in GK1 group did not receive SIMPANORM and were present of control.

Farrowing rate, litter size, the proportion of stillborn and liveborn piglets in the time of researches were recorded.

80 sows were used in the second research task, 40 females in the group experimental number 2 GD2 and the same animals in the control group number 2 - GK2. Sows in the group GD2 received SIMPANORM (Fatro, Italy) i.m., in 2 ml/100 kg b. w. after birth of first piglet s.i.d.. Females in the group GK2 received placebo in the same time i.m.. Animals in both groups were recorded for litters size, proportion of still born and live born piglets, duration of parturition as well as frequency occurrence MMA syndrome after labour were recorded.

## **RESULTS AND DICUSSION**

The obtained results are presented in table number 1 and number 2. It has been proved that application of the carazolol (SIMPANORM - Fatro, Italy) affected favourable on fertility and fecundity of the sows.

Application of SIMPANORM in the group GD1 positively affected on all evaluated reproductive indexes of the pigs (Tab 1). Farrowing rate in this group was 3,8% higher than in animals in the group GK1. Litter size in the group GD1 was also about 0,75 higher than in the control group. The difference in a number of live born piglets between groups amounted 0,7 of the piglet to GD1 group advantage. Administrated drug decreased the stillborn piglets rate about 2,82%.

The results obtained in the first research task are similar to data received by others authors which examined the usefulness of the beta blockers (propranolol and carazolol) in the female reproduction (1,2,5). Justification of the obtained results in the first examinations is peculiar action of the carazolol on the uterus. It improved action of tunica muscularis and increasing transport of the spermatozoa towards cornua uteri due to decreased effect of stress on the artificial insemination (2).

Obtained results in our examinations encourage to application the SIMPANORM before artificial insemination of the sows in farms.

Performed experiences in the second research task revealed that application carazolol (SIMPANORM - Fatro, Italy) affected profitably on analysed reproductive indexes in the sows (Tab 2). Administration of the SIMPANORM in the sows in the group GD2 decreases by 50%,

the frequency of cases of delayed parturition. In comparison with the group GK2, SIMPANORM decreased by about 1,76% the stillborn piglets rate, the litter size was similar in both groups. It was noted moreover about 7.5% fewer cases of the MMA syndrome after birth in the sows medicated with SIMPANORM. This is consistent with the results obtained after application another beta blocker - propranolol (6).

The results obtained in this trials proved that application of carazolol at a dosage of 1mg / 100 kg b.w. s.i.d. intramuscular (SIMPANORM, Fatro - Italy) has antistress action and favourably affects on reproductive and production indexes in sows.

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**Tab. 1 Influence pre insemination injection of SIMPANORM carazolol 1 mg/100 kg b.w. s.i.d. IM in Group GD1 in comparison with the group on reproductive indexes in sow in comparison with the placebo group (GK1)**

Group	Number of sow	Pregnancy rate %	Litter size	Number of living piglets	Stillborn piglets %
GD1 carazolol	40	90,0	11,02	10,2	7,48
GK1 placebo	40	86,2	10,30	9,5	10,30

**Tab. 2 Influence of application during delivery of SIMPANORM carazolol 1 mg/100 kg b.w. s.i.d. IM in Group GD1 in comparison with the group on in comparison with the placebo group (GK1) on reproductive and production indexes in sow**

Group	Number of sow	Litter size n	Duration of farrowing >6 h		Number of liveborn piglets	Stillborn piglets (%)	Incidence of puerperal disorders (MMA)	
			n	%			n	%
GD2 carazolol	40	11,40	<b>6</b>	15	10,6	7,01	<b>4</b>	<b>10</b>
GK2 placebo	40	11,67	12	30	10,7	8,77	7	17,5