

## APPLICATION OF LH/FSH-RH (RECEPTAL) FOR THE PURPOSE OF INDUCING OVULATION IN SOWS

M. VARADIN<sup>x</sup>, L.J. SENTOV, P. NIKOLIĆ, M. JOVIĆ and K. SALAHOVIĆ  
VETERINARY FACULTY, VOJVODE PUTNIKA 134, 71000 SARAJEVO, JUGOSLAVIJA

Synthetic analogue of gonadotropin releasing hormone (Gn-RH) LH/FSH-RH buserelin was applied for the purpose of inducing ovulation in sows of Sweddisch Landrace in two pig farms. Preparation Receptal (Hoechst) contains 4 mcg buserelin per 1 ml. Receptal was intramuscularly applied to anoestrous sows 15-20 days following weaning the piglets in dose of 4 ml (= 16 mcg buserelin). During the course of 8 days after application of Receptal neither one of treated anoestrous sows showed the symptoms of oestrus.

For the purpose of inducing ovulation Receptal was intramuscularly injected to sows and gilts in dose of 1 ml, 2 ml and 4 ml, immediately before the first mating or artificial insemination. The dose of 1 ml had not effect on fertility of sows. The dose of 8 mcg buserelin (2 ml Receptal) conditioned an increased number of piglets in a litter (+0.5 piglets) in relation to the control group. The best results were obtained with 16 mcg buserelin (4 ml Receptal). Out of 38 sows treated with the above mentioned dose after the first insemination 92.1% was farrowed what was 10% more farrowing than in the control group. An average number of alive piglets in the litter was 10.9 what was more 1.2 alive piglets per sow compared with the control group.

After application of Receptal in gilts in the dose of 2 ml (22 gilts) and 4 ml (26 gilts) came to decreased percentage of conception (59.1% and 61.5%) in relation to the control (68.9%), but the number of piglets in litter was increased for +0.2 and +0.7 piglets.

Index of fertility in sows (product of multiplication of percentage of farrowing after the first insemination with average number of alive piglets in litter) was after application of 2 ml and 4 ml Receptal higher +61.4 and +207.5 than in the control group (tab.1).

Table 1.-Ratio of indices of fertility in experimental and control groups

Dose (ml)	Number of animals	Farrowing %	Number of alive piglets	Index of fertility	Difference in relation to control
<u>sows</u>					
1	15	80.0	8.7	696	-100.4
2	44	84.1	10.2	857.8	+ 61.4
4	38	92.1	10.9	1003.9	+207.5
control	84	82.1	9.7	796.4	-
<u>gilts</u>					
2	22	59.1	8.8	520.1	- 51.8
4	26	61.5	8.6	528.9	- 45.0
control	45	68.9	8.3	571.9	-

Index of fertility in gilts was lower compared with the control group due to decreased percentage of conception and farrowing although the litter size was increased.

Owing to the fact that we had not succeeded in provoking oestrus in anoestrous sows by application of Receptal, we firstly treated such sows by gonadotropic and sexual hormones. When the sows came into oestrus we stimulated ovulation by Receptal. Out of hormonal preparations for the induction of oestrus we applied: PG 600 (400 I.U.FSH and 200

I.U. LH) s.c., Foligon (1000 I.U. FSH) i.m., and Suitest (testosterone and estrogens) s.c. Anoestrous sows were used as control which, after i.m. treatment with 1000 I.U. Foligon came into oestrus (tab.2).

Table 2.- Ratio of number of piglets and indices of fertility in anoestrous sows in which oestrus was provoked by hormonal treatment and after that ovulation was stimulated by Receptal

Preparation	Receptal (ml)	Number of sows	Farrowing %	Number of alive piglets	Index of fertility	Difference in relation to control
PG 600	1	15	93.3	12	1119.6	+505.8
PG 600	2	15	80.0	10.3	824	+210.2
Foligon	2	11	72.7	8.9	647	+ 33.2
Foligon	4	11	72.7	10.1	734.3	+120.5
Suitest	4	5	80.0	5.0	400	-213.8
Control	-	22	68.2	9.0	613.8	-

The highest results in anoestrous sows were obtained by combination PG 600 for the purpose of provoking oestrus and stimulation of ovulation immediately before insemination with 4 mcg buserelin (1 ml Receptal).

If we apply Foligon (FSH) a higher level of LH is needed in organism (16 mcg buserelin) in order to come to increased ovulation. The application of sexual hormones in combination with neurohormones of hypothalamus is indicated as not efficacious.

#### CONCLUSIONS

-By the application of preparation LH/FSH-RH Receptal i.m. in the dosage of 4 ml in anoestrous sows provoking of oestrus did not succeed.

-For the purpose of induction of ovulation in sows intramuscular application of 4 ml Receptal immediately before the first insemination produced the best results. The percentage of farrowing compared with the control group was higher 10%, the total number of piglets in litter was higher 1.4, while the number of alive piglets 1.2; index of fertility was higher +207.5.

By application of 4 ml Receptal in gilts the percentage of farrowing decreased while the number of piglets in litter increased. Index of fertility of treated gilts was lower compared with the control group. Further studies on the application of Receptal in gilts would be necessary.

-In anoestrous sows the best results were obtained by combination s.c. application of preparation PG 600 for the purpose of provoking oestrus and i.m. injection of 1 ml Receptal, immediately before insemination as to provoke superovulation. The percentage of farrowing was 25.1% higher while index of fertility +505.8 higher than in the control.

Selected references: Humke R., Beaupoil J.: B. M. T. W. 1979, 92, 149-152; Humke R., Zuber H.: B. M. T. W. 1977, 90, 229-234; Sandow J., v. Rechenberg W., Engelbart K.: 31. Heft 1979, 59, 431; Varadin a. col.: Proc. 9th I. C. An. Rep. 1980, Mad.