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TARAZEPIDE - APETITE FACTOR IN SWINE

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[ABSTRACT](#)
[INTRODUCTION](#)
[MATERIAL AND METHODS](#)
[RESULTS](#)
[DISCUSSION](#)
[CONCLUSIONS](#)
[REFERENCES](#)

ABSTRACT

Investigations were conducted in production conditions at pig farm after moving gilt-weaners from nursery to fattening building. TARAZEPIDE (TA) was given orally in three different doses 15 minutes before morning meal on definite days.

The aim of these investigations was to find if blockade of CCK-A receptor through TARAZEPIDE affects appetite; feed consumption and influences feeding behaviour.

It was stayed distinct influences of TA on animal behaviour. Feeding behaviour changed for same time after TA treatment. Pigs were lazy and calm, TA administration didn't affect production results.

Key words: CCK-A receptor, appetite, pigs, feeding behaviour

INTRODUCTION

Cholecystokinin (CCK) is a peptide hormone secreted in duodenum, it stimulates pancreatic enzyme secretion. Secretion of CCK is stimulated by fatty acids and partly disillused protein in duodenum. Two types of cells produce CCK: endocrine and nerve. First type of cells is located in upper part of small intenstinalis [1,2], nerve cells producing CCK are located mainly in the brain and in peripheral nervous system of the digestive tract and around of Langerhans islets [2]. It is considered that CCK can influence on development and maturity of pancreas and small intenstinalis [2,3]. One can find two subtypes of CCK: CCK-A and CCK-B, some people separated additionally subtype Gastrin, which could be identical to CCK-B (inter). CCK-A is described as an appetite regulator and receptor responsible for safety [1,4,5].

Using of additions influenced safety could be very preferable for instance after weaning or just in second trial of fatten because this time an animal appetite is growing up and at the same time food conversion is lowering.

The aim of these investigations was to find if blockade of CCK-A receptor through TARAZEPIDE (produced by Solvay Pharmaceuticals GmbH, Hannover, Germany) can lower appetite of animals fed ad libidum and if this addition influence on feeding behaviour and feed consumption. There was looking for the right dose of this addition.

MATERIAL AND METHODS

The investigations were carried out on 20 gilts from 30 to 60 kg. Animals were divided on 2 groups:

I group - 10 gilts kept in individual pens

II group - 10 gilts kept in two group pens (5 animals in every)

After two weeks of adaptation, when there was stayed daily feed consumption the experiment was begin. Fullportion feed was given ad libidum two times a day, before giving a new portion remaining feed was taken out from feeders and weighed. Every pen had a separate feeder.

During the experiment the following data were collected: body weight, daily gain, feed consumption and conversion.

Treatment comparisons for rearing results and feed conversion were made by one factor analysis of variance procedures for a completly randomised design using Microsoft Excel statistical package in ortogonal scheme. Differences between means were determined by t-student test. Feed consumption in TARAZEPIDE days were estimated by means and standard deviation.

The health of animals and their behaviour were also monitored.

There were done two experiments:

I- gilts kept individually were offered TARAZEPIDE (0.1mg; 1 mg; 10 mg/kg body weight) 15 minutes before morning feeding in 20 g of natural jogurt, gilts kept in groups were given only feed.

II - TARAZEPIDE was given once in bigger doses (10 and 50 mg) to gilts kept individually, next it was given continuously through 5 days, to better control TARAZEPIDE was given one time to gilts kept in group pens.

Scheme of the experiments: (days of: weighing /W/; giving TARAZEPIDE /T/; control /C/-only feed)

I experiment (following days)					
1 st day -W	2 - C	3 - T (0.1)	4 - C	5 - C	6 - C
7 - W	8 - C	9 - T (1)	10 - C	11 - C	12 - C
13 - W	14 - C	15 - T (10)	16 - C	17 - C	18 - C
19 - W					

II experiment (following days)
20 th day – (T 10 mg – all gilts kept individually)
21 – 22 – C
23 – (T 50 mg – all gilts kept individually)
24 – 25 – C
26 – W
27 – 32 – C
33 – W
34 – (T 10mg- 5 first gilts kept individually and 5 from one group pen), others - C
35 – 39 – (T10mg-5 first gilts kept individually), others – C
40 – W
41 – (T 10mg- second part of 5 gilts kept individually and the second group pen, others -C
41 – 46 – (T 10mg- second part of 5 gilts kept individually), others – C
47 – W

RESULTS

[Table 1](#) presents rearing results of gilts during the investigations. Average body weight in the beginning was 31.72 kg and was the same in the experimental population. In the end of observations there was a considerable (7 kg) difference between groups but it was caused by animals maintenance not by experimental factor which was TARAZEPIDE. Average daily gains through all experimental period look good (680g). Gilts kept individually had higher gains about 154 g more per day than gilts from group pens.

Table 1. Rearing results of gilts during the investigations

Body weight (kg)									
Days of observations		1	7	13	19	26	33	40	47
Group I	x	31.65	35.95	39.75	44.25	49.65	55.80	61.20	67.25
	±	0.75	1.42	1.72	2.10	2.59	3.65	4.28	4.33
Group II	x	31.8	35.55	38.55	42.1	46	50.5	55.15	60.15
	±	1.72	3.24	3.51	3.5	4.04	4.58	5.75	6.82
Daily gain (g)									
Days of observations		1 - 7	7 - 13	13 - 19	19 - 26	26 - 33			
Group I	x	717	633	750	771	879			
	±	172.1	167.6	152.1	129.5	190.6			
Group II	x	625	500	592	557	643			
	±	289.3	117.9	107.2	115.7	202.2			
		33 - 40	40 - 47	1 - 19	33 - 47	1 - 47			
Group I	x	771	864	663	763	757			
	±	149.8	52.7	88.4	76.1	89.5			
Group II	x	664	714	542	643	603			
	±	202.2	196.3	105.4	167.1	118.8			

[Table 2](#) shows feed consumption in days when TARAZEPIDE was given. There was no stayed distinctly influence of TA given on feed consumption however the next day after TA day animals ate a little less. Total feed consumption analyse for all investigation period didn't show TA influence on this factor however in the second experiment when TA was given continuously there was noted small drop of consumption after this period when there was start given only feed.

Table 2. Feed consumption in TARAZEPIDE days (kg/day/head)

		Group I	Group II
Day before	x	1.7	1.6
	±	0.31	0.07
Tarazepide – 0.1 mg	x	2.0	1.6
	±	0.17	0.0
Day after	x	1.9	1.3
	±	0.19	0.0
Day before	x	2.1	1.6
	±	0.31	0.07
Tarazepide – 1 mg	x	2.4	1.9
	±	0.20	0.06
Day after	x	2.2	1.9
	±	0.44	0.07
Day before	x	2.1	1.8
	±	0.41	0.17
Tarazepide – 10 mg	x	2.4	1.7
	±	0.25	0.18
Day after	x	2.3	1.7
	±	0.53	0.14
Day before	x	2.4	1.6
	±	0.44	0.06
Tarazepide – 50 mg	x	2.3 (through first hour – 0.3)	1.6
	±	0.41	0.7
Day after	x	2.2 (through first hour – 0.18)	1.6
	±	0.48	0.13

In a group of gilts kept individually there was noted worrier feed conversion. It seems be a result of maintenance system. However it is worth to underline that in last week of investigations both groups of gilts obtained nearly the same level of this parameter - [table 3](#).

Table 3. Feed conversion during investigations (kg/kg b.wt.)

Days of observations		Group I	Group II
1 - 7	x	3.26	2.66
	±	0.76	0.02
7 - 13	x	3.82	3.32
	±	1.21	0.31
13 - 19	x	3.06	2.76
	±	0.94	0.13
19 - 26	x	2.93	2.91
	±	0.25	0.32
26 - 33	x	2.84	2.25
	±	0.35	1.03
33 - 40	x	3.37	3.01
	±	0.74	0.41
40 - 47	x	2.97	2.9
	±	0.36	0.13

During the investigation there were conducted interesting behavioural observations consisting with TA additive.

I experiment

- 0.1 mg TA/ kg b.w.: no TA influence on animal behaviour or feed consumption during the first hour after feeding and all day
- 1 mg TA/kg b.w.: group I gilts (experimental group) started to eat and after few minutes they took a small break, then lay down for a period of 20 minutes. Next they ate a little and again layed down. The pigs were calmer compared to group II (control group)
- 10 mg TA/kg b.w.: after this dose experimental gilts were more lazier compared to other days and control pigs. They ate for parts, all day they were laying and they were impassive to everything around them.

II experiment

- 10 mg TA/kg b.w.: observations were the same as described earlier
- 50 mg TA/kg b.w.: results were quite similar to those with 10 mg, except that after this larger dose pigs also ate less at their first meal the next day (with lower doses there was no observed influence of giving TA on animals behaviour the next day)
- on 34-th day of investigations TA (10 mg) was given to 5 gilts kept individually and to one group pen. Experimental gilts, which got TA, were passive, however they ate on the same level as the remaining five. Gilts from group pen ate half as normal from their first meal and as compared to the second pen, but over the whole day they ate (9kg) nearly the same as those in the second pen. However, it was less than the day before (10.8 kg) and the following day (11.6 kg). After this first meal, they were calm and they didn't interested themselves in the feeder too much. They lay more than the pigs in the second pen. They ate more at the second meal, but weren't nervous when they started eating (food was all the time in feeder). From this day and for the following 6 days 5 gilts kept in individual pens were given TA every day. Observations were similar to those made earlier. During this time they ate their feed portion in several more attempts compared to control pigs. There weren't any TA additions the next week. Changes in behaviour and feed consumption were not observed in experimental pigs given TA for prolonged time.
- 41-st day of investigations was similar to 34-th. TA was given to the other pigs (next 5 kept individually and the second group pen). This day, the gilts, who received TA, ate distinctly very little for the first meal (timed for one hour). After testing first part of food with TA they lay down and they started looking for food after 1 hour. Consumption of feed over the whole day was at the same level as for the other days.

CONCLUSIONS

There was no confirmed statistical influence of TARAZEPIDE addition on production results. Differences between experimental groups are rather consist with animal maintenance. Distinct influences of TA were observed on animal behaviour. After TA consumption pigs exhibited typical signs of satiety; they became lazy, calm and ate less than usual.

It is interesting to note that this influence was short-lived and there was no difference if TA was given once or successively for six days. It was effective for about 5-6 hours.

An important point is that lowering of feed consumption after TA administration had no negative consequence on production results.

The above mentioned changes in feeding behaviour can be important when considering pig productivity. Lower feed consumption without effects on productive parameters in the second phase of fattening production is of economic interest to pig breeders. The mechanism behind these observed changes in somewhat peculiar. Blockade of the CCK-A receptors, if being responsible for satiety, should manifest opposite effects. Pigs should eat more and be more active since their receptors evoking satiety were blocked. However, considering that blockade can be positive namely receptors are blocked in stimulate phase, thus evoking satiety.

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