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Abstracts

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4.1

IMPACT OF SIMULATED STRESS ON THE DISTRIBUTION OF SPERMATOZOA AND INTRALUMINAL ENVIRONMENT IN THE PIG OVIDUCT*

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The oviduct is a vital organ for successful fertilisation in vivo. In the pig, the uterine-tubal junction (UTJ) forms a sperm reservoir, keeping spermatozoa viable until their forward release towards the place of fertilisation, the ampullary-isthmic junction (AIJ). In systems that involve group housing, regrouping of sows imply a short, intense period of stress during the establishment of ranks among sows. Since regrouping is commonly executed after weaning, this stress might interfere with several processes important for successful fertilisation. The present study aimed at assessing whether experimentally simulated stress during oestrus influence sperm distribution and the intraluminal environment in the oviduct of sows. Fourteen multiparous sows were monitored for spontaneous ovulation using transrectal ultrasonography every fourth hour in two consecutive oestruses after weaning. In the second oestrus, seven sows were given synthetic ACTH (Synacthen® depot, Novartis 2.5 μg/kg) every second hour, from onset of standing oestrus until ovulation. All sows were artificially inseminated 16–18 h prior to expected ovulation (estimated from the first oestrus). There was no significant difference in time from AI to ovulation between the control(C)-group and the ACTH-group ($P = 0.7$). At 6 h after ovulation, oviducts were handled under narcosis prior to euthanasia. One oviduct was removed, divided in three sections, UTJ and two equal isthmic segments, which were all subsequently flushed for sperm retrieval and determination of total number of spermatozoa per segment. The contralateral oviduct was prepared for scanning electron microsocopy (SEM) by vascular perfusion of glutaraldehyde through a supplying artery.

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The ALT and ampulla were flushed, the ova retrieved and the number of spermatozoa attached to the zona pellucida determined microscopically. During treatment, cortisol levels in plasma were significantly higher in the ACTH-group, than in the C-group ($P < 0.0004$). Numbers of retrieved spermatozoa, either as total number or number per tubal segment or ova, did not differ statistically between the C-group and the ACTH-group (analyses performed on Log 10 transformed values). However, there was a general tendency towards a higher number of spermatozoa among sows in the ACTH-group, especially in the isthmic segment adjacent to the AIJ ($P = 0.11$). Such high numbers of spermatozoa at the site of fertilisation might predispose for polyspermia. The SEM of the UTJ and isthmus revealed presence of intraluminal amorphous material, seemingly exaggerated in the ACTH-group, compared to the C-group. The amorphous material stained with both PAS and Alcian-blue, and covered the epithelium and embedded spermatozoa. In conclusion, stress simulated by exogenous ACTH in sows may interfere with the transport of spermatozoa in the female genitalia, and might alter the intraluminal environment of the UTJ and isthmus.

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4.2
A NEW SIMPLE DEVICE FOR TRANSCERVICAL INSEMINATION IN SOWS

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Introduction: Transcervical AI in swine is a new promising technique. Several devices have been designed to this aim, and inseminations are being carried out with good results. Present devices consist of a probe that is inserted through out a traditional catheter that is capable to passing trough the uterus cervix and reach the uterus body. Nevertheless, this type of inseminations is expensive.

The objective of this study is to design and validate a new device for post-cervical insemination, avoiding the use of traditional catheters as guide. This probe, named as Magaplus®, is a flexible plastic cannula, and it's cheaper than other previous designed devices.

Materials and methods: Inseminations with Magaplus® have been carried out in Mexico, Spain, Italy and Portugal in commercials farms belonging to different companies with different handling climate genetic and insemination method.

All the inseminations have been carried out after standing oestrus reflex in weaned sows. A non-espermicidal lubricant non spermicidal were used on the tip of Magaplus® to help step forward Magaplus through out the cervix. This was compared with the standard insemination devices that allow semen to be deposited in the posterior folds of the cervix.

Sperm doses were packaged in a 90 ml volume in a commercial extender containing 3×10^9 viable sperm cells. Inseminations were done using different volumes and sperm concentration. Two inseminations were given to each sow, with a 24 h interval between