Determination of Vaginal and Uterine Microflora in Pre- and Post Farrow Sows in a Mastitis-Metritis-Hypogalactia and Agalactia MMHA Herd.

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The objective of this study was to determine the vaginal and uterine microflora in sows from a herd with high incidence of MMHA, and evaluate the effectiveness of preventive treatment with various drugs in solution introduced intrauterine. Researchers, clinicians, and practitioners define metritis, mastitis, and agalactia (MMA) as a complex disease. From our standpoint this definition is incomplete and does not describe adequately the actual condition frequently seen clinically. We prefer the terminology of metritis, mastitis, hypogalactia and agalactia (MMHA) and more precisely differentiating hypogalactia from agalactica by degree of clinical symptoms, local inflammatory reaction of the glands, and amount of milk production.

R. F. Ross, in his summary of bacteriological study of sow agalactia with necropsy of 13 agalactic and 11 normally lactating sows at 1 to 2 days after parturition revealed that 7 of the agalactic and 4 of the clinically normal sows had lesions of mastitis. Escherichia coli, Streptococcus equisimilis, and Staphylococcus epidermidis were the predominant organisms isolated.

In this study, a total of 794 sows were processed during the pre- and post-farrowing period. Approximately 72 hours prior to farrowing, vaginal swabs (disposable plastic culturette) were collected from 397 sows for isolation and differentiation of microflora. Ten to 16 hours post-farrowing uterine swabs (K_1-2500 disposable guarded culturette) were collected from the same animals.

All sows were observed twice daily for clinical evidence of MMHA. Three principal bacterial pathogens were isolated from above vaginal and uterine samples. 1) Escherichia coli; 2) Streptococcus spp; 3) Staphylococcus spp. From 397 vaginal swabs taken from pre-parturient sows, E. coli was detected in 373 animals or 93.9%, Streptococcus spp. in 16 sows or 4.5% and Staphylococcus spp. in 8 sows or 1.6%. From 397 uterine swabs taken from post-parturient sows, E. coli was detected in 370 or 93.7%; Streptococcus spp. in 20 or 5.3% and Staphylococcus spp. in 7 or 1.7%.

While there was a correlation of the incidence of microbial flora of the vagina and uterus, indicating an ascending infection, one cannot exclude a possiblity of post-partum bacterial contamination of the uterus. This possibility is amplified by findings of an earlier study conducted at the University of Illinois which utilized aseptic techniques (laparotomy) for bacteriological examination of porcine uterus. The latter showed an average of 13% uterine bacterial infections.

The 373 E. coli positive sows from pre-farrowing samples, have been divided into 4 groups:

a) 153 sows have been infused with Utonex, 144 or 94.4% responded leaving 5.6% which did not develop one or more symptoms.
b) 60 sows have been infused with furacin solution. Seven or 11.6% responded to furacin infusion, 53 or 88% did not.
c) 60 sows were infused with ECP, and did not show any response.
d) In our observed herd, the incidence of MMHA was 96.6% in the control group of 100 animals.

Materials and Methods:
In our study sows were processed during the pre- and post-farrowing period. Rectal body temperatures were recorded and monitored with instant digital, high accuracy interchangeable heat probe thermometer - P392: a) 3 days pre-farrowing, b) 10-20 hours prior to farrowing, and c) 1-16 hours (up to 3 days) post-farrowing. In addition, swabs were taken with disposable plastic culturettes from 397 sows to determine vaginal microflora 3 days pre-farrowing (Group A), 1-16 hours post-farrowing uterine microflora were determined in 397 sows with K_1-2500, disposable guarded culture instrument.

The observed 397 sows were divided into 4 groups. Group A consisted of 153 sows infused with 10 cc Utonex. Group B consisted of 60 sows infused with 10 cc furacin. Group C consisted of 60 sows infused with 2 cc ECP diluted in 18 cc distilled water. Group D consisted of 100 sows used as the control group. For intrauterine infusion we used plastic disposable pipette, 22 x .090 X-, 210 with syringe tip. Intrauterine infusion was done 24 hours after farrowing.

Utonex is a brand of ethanyl estradiol and nitrofurazone. Each ml of the suspension contains: 1) ethinyl estradiol--0.1 mg, 2) nitrofurathiazide--1 mg, 3) in a peanut oil vehicle containing 2% aluminum monoestearate and 0.1% propylparaben as a preservative.

Furacin solution contains 0.2% nitrofurazone in a water soluble polyglycole base.

ECP (estradiol cypionate) is the oil-soluble 17 cyclopentylpropionate-oster of "alpha" estradiol. Each ml of solution contains 2 mg estradiol cypionate, 5 mg chlorobutanol anhydrous in 916 mg cottonseed oil with 0.1% oxystearin.

Results:
Three species of bacteria were isolated from the vagina and uterus as a dominant infective agent: 1) Escherichia coli, 2) Streptococcus, 3) Staphylococcus. In some instances intrauterine post-parturient microflora can result from different sources, regardless of pre- and post-partum vaginal microflora as individual introductory factor in occurrence and development of diseases.

Utonex, 94.4% responded, and 5.60% did not respond and developed one or more symptoms. 11.66% animals responded to furacin infusion, and 88% did not. ECP infusion did not induce any response.

In our observed herd, the incidence of MMA was 96.66% in the control group of 100 animals.

Previous data and history of MMA in this chosen herd has shown that 85-95% were affected.

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