

# Poster Session

## Comparison of Three Therapeutic Methods of Cystic Ovaries in Holstein Cows

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### Introduction

Cystic ovarian degeneration (COD) is considered one of the most important causes of reproductive failure in cattle. The economic loss to dairy industry is severe, because COD increases both days-open and culling rates. The disease process is a consequence of a mature follicle that fails to ovulate at the appointed time of ovulation in the estrous cycle. This anovulatory follicular structure either regresses or persists as a follicular or luteal cyst, depending upon its structural/functional characteristics. Hormonal preparations that release luteinizing hormone from the anterior pituitary or have luteinizing hormone-like action are used to treat follicular cysts. GnRH belongs to the former group and human chorionic gonadotrophin (hCG) hormone is in the latter group. Treatment with a luteolytic agent, prostaglandin F<sub>2</sub>α (PGF<sub>2</sub>α), is successful if a luteal cyst is diagnosed properly.

### Materials and Methods

Four dairy herds, having similar management and nutritional status, with a total of 2000 milking cows and a 45 days VWP participated in the study. Cows which had normal parturition and more than 35 days postpartum were palpated to find the presence of follicular structures more than 25 mm in size. Confirmation of the same structures 10 days later classified them as cystic cows in the absence of uterine infection, which was confirmed by vaginoscopic examination. Blood samples were collected in heparinized vacutainers and centrifuged at 2000 RPM. Plasma were then frozen at -4°F (-20°C) until progesterone RIA. Cows were randomly allocated as follows: 1) control group (n=20); GNRH (day 0)-estrous detection and AI; 2) estradiol group (n=20); GNRH+PGF<sub>2</sub>α (day 0)-PGF<sub>2</sub>α (day 14)-estradiol benzoate (day 15)-estrous detection and AI for 48 hours – set-time AI at 48 hr; 3) GNRH group (n=20); GNRH+PGF<sub>2</sub>α (day 0)-PGF<sub>2</sub>α (day 14)-GNRH (32 hrs later)-AI (24 hrs later). Statistical analyses: Chi square test and One-Way ANOVA.

### Results

Seventeen cows that received GNRH+PGF<sub>2</sub>α showed estrus and were artificially inseminated before receiving the second PGF<sub>2</sub>α injection. Cows with any diseases were discarded from the experiment. Finally, 16 controls (13 luteal + 3 follicular cyst), 15 in the estradiol group (11 luteal + 4 follicular cyst), 16 in the GNRH group (10 luteal + 6 follicular cyst) and 13 in the PGF<sub>2</sub>α+GNRH group (11 luteal + 2 follicular cyst) were analyzed statistically. The interval from the initiation of the treatment to the first service in the PGF<sub>2</sub>α+GNRH group was significantly lower than those of the other groups (P<0.001). However, the differences were not significant for the second and the third services and days open. The interval from the start of treatment to pregnancy was lower in PGF<sub>2</sub>α+GNRH group compared to the other groups (P<0.05). There were no significant differences in the first service conception rates among GNRH, PGF<sub>2</sub>α+GNRH and control groups, however, this was significantly lower than those of the control and estradiol groups (6.67% vs 25%). There were no differences in second, third and the overall conception rates among all groups.

### Significance

The methods of treatment used in the control, Estradiol, GNRH, and PGF<sub>2</sub>α+GNRH groups have the same therapeutic effect. Therefore, depending on management practices and facilities at the dairies, either of these approaches can be used. If there is no limitation in estrus detection, either the control or GNRH-PGF<sub>2</sub>α programs can be used. With the protocol GNRH-PGF<sub>2</sub>α, only one injection is needed, and there is no need for the second PGF<sub>2</sub>α injection, therefore this method is more feasible than the method described for controls. When females do not exhibit estrus, either the GNRH or estradiol protocols can be used to continue the treatment. If short estrus detection (for 48 hrs) is feasible, the Estradiol protocol is preferable to the GNRH program due to cost.