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GONADOTROPIN-RELEASING HORMONE IMPROVES
CONCEPTION RATES OF REPEAT-BREEDERS WITH
PREVIOUS REPRODUCTIVE DISORDERS

J.S. Stevenson and E.P. Call

Summary

An experiment examining the benefit of treating repeat-breeders with 100 µg GnRH (Cystorelin®) at the time of third or fourth insemination was conducted in 513 dairy cows of which 93 (abnormal cows) had been diagnosed previously (during the 60 to 90 days postpartum) as having reproductive disorders, including retained placenta, uterine infections, prolonged anestrus, and cystic ovaries. Treatment with GnRH improved conception in normal and abnormal repeat-breeding cows by 13 percentage points or 42%.

Introduction

Three types of cows contribute greatly to long calving intervals in dairy herds. These include: (1) cows that do not show estrus or are not observed in heat until 2-3 months after freshening, (2) cows that are found nonpregnant at pregnancy checks, and (3) repeat-breeding cows. Successful treatments for the first two problems were addressed previously in our research at Kansas State University (see pp 66-70, 1986 Dairy Day, KAES Rep. Prog. 506).

Use of GnRH (Cystorelin®) at the time of insemination has increased conception rates of repeat-breeders in our previous work at KSU (see pp 26-27, 1984 Dairy Day, KAES Rep. Prog. 460). However, the mechanism of GnRH's action in the cow is not well understood. Furthermore, the previous health status of cows given GnRH at repeat breedings has not been documented to determine if it is less healthy cows that respond to GnRH at insemination. The objective of our study was to determine if GnRH would improve conception rates in cows with previous reproductive disorders.

Procedures

From November 1985 to August 1986, cows (n=513) in one large commercial dairy herd with (n=93) or without (n=420) previous reproductive disorders were given 100 µg GnRH (i.m.) after insemination or were left untreated at third and fourth services. Previous reproductive problems included retained placentae (26% of abnormal cows or 4.7% of all cows), uterine infections (27% or 4.9%), cystic ovaries (31% or 5.6%), and prolonged anestrus (16% or 2.9%). As cows were diagnosed (during first 60 to 90 days after calving), various veterinary treatments were employed to resolve the reproductive problem. Cows were not assigned randomly to treatment, but were treated according to the discretion of the herdsman or of any of three inseminators. Treatment was based on the knowledge that GnRH might improve conception rates of repeat-breeders.

Results and Discussion

Our results are summarized in Table 1. Treatment with GnRH tended to improve ($P=.13$) conception rates from 12 to 25% in cows previously diagnosed with reproductive disorders (abnormal cows) and increased ($P<.05$) conception rates from 36 to 47% in normal cows. Overall, conception rates improved by 13 percentage points or 42% when GnRH was administered at the time of AI. The effect of health status on conception rates was dramatic but not surprising, since conception rates in normal cows (40%) were higher ($P<.001$) than those in abnormal cows (15%).

Table 1. Conception rates (%) of repeat-breeders given GnRH with (abnormal) or without (normal) prior reproductive disorders

Treatment	Normal	Abnormal	Total
GnRH	68/145 (47)	6/24 (25)	74/169 (44) ^a
Untreated	100/275 (36)	8/69 (12)	108/344 (31)
Total	168/420 (40) ^b	14/93 (15)	182/513 (35)

^aDifferent from untreated cows ($P<.05$).

^bDifferent from abnormal health status cows ($P<.0001$).

These results provide further evidence that GnRH is an effective treatment for repeat-breeding dairy cows. A summary and update of all work utilizing GnRH for treatment of repeat-breeders is found in this publication (pp 70-71). Although it is not yet clear how GnRH improves fertility, further work is underway to better understand the physiology of GnRH's action.