

Effect of progesterone concentration at and during ovsynch protocol on conception rate in dairy cows

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Introduction

The objective of this study was to determine the effects of various amounts of plasma progesterone (P4) throughout an ovsynch treatment protocol on conception rate in dairy cows.

Materials and Methods

High producing dairy cows (n = 57) in lactations 1 through 5 and at least 50 days-in-milk were enrolled into a typical ovsynch protocol (GnRH injection on day 0, prostaglandin injection on day 7, GnRH injection of day 9 (48 hours after prostaglandin injection) to synchronize ovulation, and artificial insemination (AI) 16 hours after the second GnRH injection). For each cow, the ovsynch protocol was begun six to nine days after an observed estrus. Blood samples were collected for determination of P4 concentration at the time of the first GnRH injection and at the time of the prostaglandin injection. Pregnancy status of each cow was determined via transrectal examination 35 to 45 days after AI. Statistical analyses of data were performed and means and their associated 95% confidence intervals were calculated.

Results

The conception rate for all cows was 72%. At the time of the first GnRH injection, mean serum P4 concentration was 4.48 ng/mL and 5.87 ng/mL for cows

that were subsequently diagnosed pregnant and not pregnant, respectively; and this difference was not significant ($P > 0.05$). Similarly, at the time of the prostaglandin injection, the mean serum P4 concentration did not differ significantly for cows that were subsequently diagnosed pregnant (P4, 6.99 ng/mL) or not pregnant (P4, 7.38 ng/mL).

Results indicated that the serum P4 concentration was reasonably high at the time of the first GnRH injection, which suggested that cows had functional corpus lutea (CL) at the start of the ovsynch protocol. The P4 concentration was also high at the time of the prostaglandin injection, suggesting the continued presence of a functional CL, which may explain the exceptional conception rate achieved for the study cows.

Significance

This study revealed no association between P4 concentration throughout the ovsynch protocol and the subsequent conception rate in dairy cows.