

EFFECT OF CLINICAL ENDOMETRITIS ON REPRODUCTIVE PERFORMANCE IN HOLSTEIN COWS IN ARGENTINA

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The objective of the study was to examine the relationship between clinical endometritis (CE) and time to conception in Holstein cows. A longitudinal study was conducted in one farm in Buenos Aires, Argentina. Five hundred and fourteen cows that calved from 1 July 2001 through 30 June 2002 were considered for inclusion. Animals that had abnormal calvings, puerperal metritis, intrauterine therapy, reproductive hormone therapy, pyometra or any clinical disease that required systemic antibiotic treatment prior or at time of enrollment, were excluded from the study. Therefore, only 462 cows which had complete records, and were eligible for the study were included. Each postpartum cow was examined once between 15 and 30 days postpartum at a monthly herd visit. At examination, cows were first inspected for presence of fresh and/or dry discharge on the vulva, perineum, or tail; then the mucus content of the vagina was evaluated for color, proportion of pus to mucus, and odor; a score was assigned as follows: clear mucus (0, [NOR]), predominantly clear with flecks of pus (1, [CE1]), purulent but not foul-smelling (2, [CE2]), or purulent or red-brown and foul smelling (3, [CE3]). After clinical examination was concluded, cows with CE score 3 received a systemic treatment with 12 g of oxytetracycline (im, Terramicina LA[®], Pfizer SRL, Buenos Aires, Argentina) and 750 µg of tiaprost (im, Iliren[®], Intervet Argentina SA, Martinez, Argentina). Cows with a CE1 and CE2 did not receive further treatment. At the end of the voluntary waiting period (40 days), cows with normal mucus (NOR) and CE1 were detected in heat twice a day and AI. Cows with CE2 and CE3 were not bred if detected in heat. All cows were re-examined 30 days after the first examination following the same criteria for diagnosis and treatment of CE. Cows that in the first examination were diagnosed CE2 or CE3 and in the next monthly visit were diagnosed NOR or CE1, were cleared to be AI at detected heat. Cows diagnosed open at pregnancy

diagnosis by transrectal palpation at 35–65 days post-AI were treated with 750 µg of tiaprost (im, Iliren[®], Intervet Argentina SA, Martinez, Argentina) and were detected in heat twice a day and AI. Categorical data were analyzed with CATMOD procedure and continuous data with GLM procedure of SAS[®]. There were no significant differences in prevalence of CE between primiparous and multiparous cows ($P > 0.11$). At first diagnosis, 74% of all cows were NOR, 9% were CE1, 11% were CE2 and 6% were CE3. At second diagnosis, 86% of CE1, 87% of CE2 and 70% of CE were diagnosed NOR. Also, 6% of CE2 and 7% of CE3 were diagnosed CE1, and 9% of CE3 were diagnosed CE2. Approximately 5% of CE1, 4% of CE2 and 10% of CE3 remained with no change in diagnosis. Furthermore, 10% of CE1 and 5% of CE2 progressed to CE2 and CE3, respectively. NOR cows had a significantly shorter interval to first heat (IFH), interval to first IA (IFAI), days open (DO) and services per conception (SPC) compared to CE1, CE2 and CE3 cows (IFH: 47, 58, 65 days, $P < 0.01$; IFAI: 61, 73, 71 days, $P < 0.02$; DO: 97, 123, 141 days, $P < 0.001$; SPC: 2.2, 2.7, 4.1, $P < 0.01$). Also NOR cows had a significantly higher pregnancy rate at first AI (PRFAI), and percentage of cows pregnant by 120 days postpartum (P120) compared to CE1 + 2 and CE3 cows (PRFAI: 46%, 31%, 20%, $P < 0.01$; P120: 73%, 54%, 40%, $P < 0.001$). In conclusion, cows diagnosed with CE by manual inspection of vaginal mucus between 15 and 30 days postpartum had between 26% and 15% reduction in pregnancy rate at 1st AI and had a 19–33% less chances to be pregnant by 120 days postpartum.

Keywords: Vaginal mucus; Clinical endometritis; Reproductive performance; Grazing; Dairy cows

INCIDENCE OF DELAYED FIRST POSTPARTUM OVULATION AND PROLONGED LUTEAL PHASE AFTER THE FIRST OR SECOND OVULATION POSTPARTUM IN HOLSTEIN COWS AND ITS EFFECT ON SUBSEQUENT REPRODUCTIVE PERFORMANCE

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Postpartum anestrus caused by delayed first ovulation is one of the most important reproductive disorders in high-producing dairy cows. Delayed luteolysis or pro-

longed luteal phase after the first or second ovulation postpartum has also been reported to be on the increase. The objectives of this study were to show the incidence of the prolonged luteal phase in cows postpartum and to compare the reproductive performance between a group of cows with normal resumption of ovarian cycles and the other groups of cows with prolonged luteal phase or delayed first ovulation. Milk samples were collected two or three times weekly from the 2nd week to the 12th week postpartum in 396 Holstein cows being reared on 10 commercial farms across Japan during a period of 18 months. Average milk yield per cow per lactation in each herd ranged between 9000 and 12,000 kg. Milk progesterone concentrations were determined by a direct ELISA to monitor ovarian cycles postpartum. Cows resuming ovarian cycles within 35 days postpartum were considered normal. Prolonged luteal phase was defined by a luteal phase exceeding 21 days on the basis of milk progesterone profile. The incidence of abnormal resumption of ovarian cycles in 396 cows was 57.3%, which varied among the different herds from 47.8% to 72.2%. The most frequently observed abnormality was delayed first ovulation, 29.0%, followed by prolonged luteal phase after the first or second ovulation postpartum, 17.7%. The other abnormalities include cessation of ovarian cyclicity after a normal cycle. The incidences of delayed first ovulation as well as prolonged luteal phase varied among different herds, 12.7–38.4% and 6.1–33.6%, respectively. Pregnancy rates within 100 days postpartum in cows with delayed first ovulation (20.8%) and in cows with prolonged luteal phase (17.1%) were significantly lower ($P < 0.01$) than the rate in cows with normal resumption of ovarian cycles (47.3%). In conclusion about a half or more cows in the commercial dairy herds in Japan, where the national average in milk yield per cow per lactation is more than 9000 kg, had abnormal resumption of ovarian cycles, which resulted in poor pregnancy rate.

Keywords: Cows; Ovarian cycles; Ovarian dysfunction, Postpartum; Prolonged luteal phase

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EARLY CONCEPTION FACTOR TEST FOR DETERMINATION OF PREGNANCY/NON-PREGNANCY STATUS IN VIRGIN HOLSTEIN HEIFERS

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An early accurate test of pregnancy and non-pregnancy is an important reproductive tool for an adequate reproductive cattle management. Recently, a new test called the ECFTM (early conception factor) Dip Stick Test has been developed. The objective of the present study was to evaluate the accuracy of early conception factor (ECFTM) using blood samples collected at day 11 after artificial insemination in dairy Holstein heifers known to be pregnant and non-pregnant. Forty-eight virgin Holstein Heifers of 14–15 months in the first artificial insemination were used. Eighteen animals that were confirmed pregnant based on the presence of a viable embryo by transrectal ultrasonography (TRUS) at day 25 after artificial insemination were used as the pregnant group (positive control group). Twenty-four heifers that were not artificially inseminated were used as the non-pregnant group (negative control group). The product was used according to the manufactures recommendations. Blood analysis was performed by a person unaware of the TRUS results. The prevalence of pregnancy was 37.5% (18/48). The sensitivity ECFTM was 22.2% (4/18) and the specificity was 83.0% (20/24). The positive predictive value and negative predictive values was 60.0% (4/10) and 62.5% (20/32), respectively. The percentage of false-negative and false positive results was 66.7% (12/18) and 16.6% (4/24), respectively. Each blood same was tested with two different batches of ECFTM. Results showed poor agreement ($\kappa = 0.14$). It is concluded that the present ECFTM test is not reliable and cannot be recommended as a test to determine pregnancy and non-pregnancy.

Keywords: Cattle; Pregnancy diagnosis; Early conception factor; Accuracy