

Effects of Delayed Resumption of Ovarian Cyclicity Postpartum on Subsequent Reproductive Performance in High-Producing Holstein Cows

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High incidence of delayed resumption of ovarian cyclicity postpartum has been reported in high-producing dairy cows. However, their effects on subsequent reproductive performance have not been well reported. The aim of this study was to investigate the effects of delayed resumption of ovarian cyclicity postpartum on subsequent reproductive performance in high-producing Holstein cows. The study was conducted in a commercial dairy farm having about 150 lactating cows, in a subtropical region in Japan (maximum summer temperature 34°C). Animals were kept in free-stall barn, and fed total mixed ration consisting mainly alfalfa, timothy and oat hays, corn, touhu (soybean cake) ground wet, beet pulp, cotton seed and soybean. Cows calved between June 2001 and July 2002, were included in the study. The average body weight of the cows during dry period was 706 kg, and the average 305d milk yield was 10,356 kg. Milk samples were collected twice weekly from 2 to 11th week postpartum, and the progesterone concentration in skim milk were determined by ELISA. Vaginoscopic examination and palpation of genitalia per rectum were done at two weeks intervals after calving. After a voluntary waiting period of 40 days, cows detected in heat were bred by artificial insemination (AI). Pregnancy was confirmed by palpation per rectum 45 to 70 days after AI. Out of 91 cases, 42.9% had normal resumption of ovarian cyclicity (ovulation within 45 days after calving, followed by normal ovarian cycles), 35.2 % had delayed resumption Type I (prolonged luteal phase, i.e., cycles with luteal activity >20 days), and 13.2 % had delayed resumption Type II (delayed first ovulation, i.e., first ovulation did not occur until 45 days of calving). The remaining (8.8%) had other types of resumption. When compared with normal resumption, delayed resumption Type I cows had lower 100d pregnancy rate (42.1 vs 9.4 %; $P<0.01$), and longer days to first AI and, to conception (67 ± 6 vs 98 ± 7 days, and 95 ± 9 vs 136 ± 11 days, respectively; $P<0.01$). Similarly, when compared with normal resumption, delayed resumption Type II cows had lower 100d pregnancy rate (42.1 vs 0.0 %; $P<0.01$), and longer days to first AI and, to conception (67 ± 6 vs 93 ± 12 days and 95 ± 9 vs 155 ± 14 days; $P<0.05$, respectively). The delayed resumption Type I cows having delayed uterine involution, had lower pregnancy rate within 150 days postpartum than their counterpart in normal resumption group (22.6% vs 56.5%, $P<0.05$). In conclusion, delayed resumption of ovarian cyclicity postpartum adversely affected the subsequent reproductive performance in high-producing dairy cows.

Keywords: dairy cows, ovarian resumption, postpartum, reproductive performance