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**Abstract**

**Hastening first postpartum ovulation as a means to improve reproduction performance after the voluntary waiting period in Israeli Holstein cows**

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Postpartum uterine inflammatory conditions, such as metritis and endometritis, are widespread and lead to major economic losses in bovine dairy herds. Endometritis, diagnosed as cytological endometritis (CEM) from 21 days-in-milk (DIM) onwards by assessing polymorphonuclear cells (PMN) in endometrial cytology, is a notable concern, also in Israel. Research indicates that cows exhibiting early spontaneous ovulation during lactation experience lower incidences of endometritis later in their lactation. Our objective was to assess the effectiveness of two hormonal regimens in advancing ovulation during early lactation (initiated at 24-27DIM) and investigate the incidence of CEM later in lactation. In a prospective cohort study, 450 Holstein-Frisian dairy cows were included. Using transrectal ultrasonographic examination and milk progesterone cow-side test at 24-27DIM, cows were categorized into four groups: **Positive control** (spontaneous ovulation with no treatment), **Select-synch** (GnRH analog and PGF2 7d later), **Select-synch-CIDR** (GnRH analog and PGF2 7d later, with 7d CIDR), and **Negative control** (no hormonal treatment; two saline injections 1w apart). Transrectal ultrasonography was conducted five times during the study. CEM diagnosis was based on endometrial cytobrush at 38-41DIM and 66-69DIM, and Purulent Vaginal Discharge (PVD) was diagnosed by using Metricheck™. At 24-27DIM, 92.7% of cows were definitively categorized as ovulating or not. Of these, 27% spontaneously ovulated, with a higher proportion in multiparous compared to primiparous cows. Both hormonal protocols effectively induced ovulation, with higher proportions of cows ovulating during the 70DIM voluntary waiting period (Select-synch 92.1%, Select-synch-CIDR 89.1%, Negative control 71.3%). Both hormonal treatments were associated with a lower incidence of PVD. Select-synch was associated with a lower CEM risk than the negative control, especially in cows without postpartum ketosis. In conclusion, early lactation hormonal treatments can stimulate ovarian activity and decrease the risk of subsequent endometritis in postpartum Holstein-Frisian dairy cows.