Clinical endometritis in dairy cows: risk factors and reproductive efficiency


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The objectives of this study were to assess the risk for clinical endometritis (CE), and the effects of CE on milk yield (MY) and reproductive efficiency in Holstein dairy cows. The study was conducted in a commercial dairy herd (Cordoba, Argentina) where Holstein cows (N=303) calving between April 15 and May 15, 2005 were enrolled. Calving history and MY were obtained from dairy records. Cows were body condition scored (BCS, 1-5) and tail bled on -14 and 7 days (d) relative to parturition. Vaginal mucus (VM) was obtained with a gloved hand and observed by direct inspection on 5-7, 21, 31, and 41 days post partum (dpp), and classified as: VM0 (normal clear fluid), VM1 (clear fluid with pus flecks), VM2 (mucopurulent not fetid fluid), and VM3 (watery, purulent or brown-colored, and fetid). Cows having a VM3 on 5-7 dpp were categorized as having puerperal metritis (PM). Cows having VM other than VM0 between 21 and 41 dpp were diagnosed as having CE. Plasma blood samples were analyzed for non-esterified fatty acids (NEFA), beta-hydroxy butyrate (BHB) and blood urea nitrogen (BUN) using commercial kits and IGF-1, insulin, and leptin by radioimmunoassay. Data were analyzed with PROC MIXED, PROC GENMOD and PROC PHREG from SAS®. Abnormal calving increased the risk for CE (AOR [adjusted odds ratio] =2.21, P=0.019), and PM increased the risk for CE (AOR=2.21, P=0.032). Prepartum NEFA increased the risk for CE (AOR=1.003, P=0.045) while prepartum BUN reduced the risk for CE (AOR=0.853, P=0.147). Lastly postpartum BHB increased the risk for CE (AOR=1.001, P=0.10). Cows with CE had a trend for higher MY than non-CE herdmates (26.79±1.07 vs. 24.98±0.56 l/d, P=0.074). Cows with CE had lower risk for pregnancy rate by 100 dpp than non-CE herdmates (AOR=0.10, P=0.002), higher odds for non-pregnancy rate by 200 dpp than non-CE cows (AOR=2.87, P=0.011), and higher risk for reproductive culling (AOR=24.29, P<0.001). Also, CE reduced the hazard for pregnancy by 150 dpp (HR=0.30, P<0.001) and increased the calving to conception interval by ~30 d (mean±SE, 109±3 to 142±3, non-CE vs. CE cows, P<0.001). In conclusion, the risk for CE is increased in cows with abnormal calvings and PM, and it is also increased as prepartum NEFA and postpartum BHB concentrations are higher. Lastly, CE has detrimental effects on MY and on reproductive efficiency since CE cows take longer to get pregnant and are at higher risk for culling.

Keywords: Dairy cow, clinical endometritis, reproductive efficiency, risk factors