PREVALENCE AND CAUSES OF UROVAGINA AND ITS EFFECTS ON REPRODUCTIVE PERFORMANCE IN HOLSTEIN COWS

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Number of cows with urovagina is on the increase. However, prevalence, causes, and effects of the condition on reproductive performance have not been well described. This study was undertaken to better understand the pathophysiology of urovagina in cows. Two hundred fifty-eight Holstein cows (344 lactations) from seven dairy herds were examined every month by vaginoscopy and transrectal palpation to determine the prevalence of urovagina, to investigate its effects on fertility, and to determine some risk factors for urovagina. Accumulation of urine in the vagina of a cow was diagnosed as urovagina and was classified into mild (urine only on the floor of vagina), moderate (urine covering less than or equal to half portion of the external cervical os), or severe (urine covering more than half or whole portion of the external cervical os). In total, 26.7\% of lactations had urovagina (mild 11.3\%, moderate 11.0\%, and severe 4.4\%). Survival analysis was used to derive the case definition of clinically relevant urovagina based on the factors associated with increased time to conception. Only moderate (hazard ratio [HR] = 0.39) and severe (HR = 0.20) degrees of urovagina were associated with reduction in pregnancy rate and thus defined as clinically relevant urovagina. Cows with clinically relevant urovagina had decreased AI submission rate (HR = 0.52) and pregnancy rate (HR = 0.35), required more inseminations per conception (5 vs. 2; \( P < 0.001 \)), had more days open (370 vs. 136; \( P < 0.001 \)), and were more likely not to get pregnant by 210 d postpartum (odds ratio [OR] = 6.62) and to be culled for any reasons (OR = 5.32) or for reproductive reasons (OR = 9.54) compared with those in cows with no urovagina. Cows with clinically relevant urovagina had a higher risk of endometritis (36.4\% vs. 9.2\%; \( P < 0.001 \)) compared with that in cows without urovagina. Cow, low BCS at first postpartum examination (OR = 2.85), endometritis within 60 d (OR = 2.50), and horizontal vulva (OR = 9.30) were risk factors for urovagina. In conclusion, 15.4\% of lactations had clinically relevant urovagina that increased the risk of endometritis and had detrimental effects on fertility. Individual susceptibility, low BCS, and horizontal vulva increased the risk of diagnosing urovagina in Holstein cows. Urovagina needs more attention as a cause of infertility in cows.

\textbf{Keywords:} Cow, endometritis, infertility, urovagina