Evaluating the Effectiveness of Two Mastitis Vaccines in a Dairy Farm in Mashhad

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Objectives: Bovine mastitis is the most common and economically important disease of dairy herds in developed countries. The decision to employ a vaccine as part of a mastitis control program should be founded on the practitioner's ability to access peer-reviewed studies and compare incidence and severity of natural infections between vaccinated animals and unvaccinated controls. The objective of this study was to evaluate the efficiency of two commercial mastitis vaccines (Mastivac® and Startvac®) under field conditions.

Materials & Methods: In total, 150 Holstein dairy cows were selected and divided into 3 groups. Three samples were collected from each cow at the day of drying-off, 3 days and 2 weeks after parturition. The first group (n=53) received Mastivac® vaccine following the label regimen. The second group (n=51) received Startvac® vaccine following the label regimen, and the third group (n=53) was left unvaccinated as negative controls. The mastitis prevalence after parturition, Severity of infection, Duration of treatment and Rate of new infections were analyzed. The data were analyzed by using SPSS software (SPSS Inc., 22). Analysis of the mastitis prevalence after parturition in triple groups was performed using chi-square test. The comparison of the severity of infection and also the duration of treatment in all groups were analyzed by using Kruskal-Wallis test. The differences between groups with a P-value <0.05 were considered significant.

Results & Conclusion: In total, one month after parturition , 70 cases of clinical mastitis occurred in 3 study groups, and we detected no significant difference in the prevalence of clinical mastitis between any of the 3 groups (Mastivac® = 25/53, Startvac® = 25/51, Control = 20/53) ($p>0.05$). The average severity of clinical cases (score1 = mild, score2 = moderate, score3 = severe) in three groups were 1.36, 1.24 and 1.45 for Mastivac®, Startvac® and control group, respectively ($p>0.05$). Duration of treatment in three groups were 3.7, 3.29 and 3.6 days for Mastivac®, Startvac® and control group, respectively ($p>0.05$). New infection rate after parturition were 40% for Mastivac®, 44% for Startvac® and 40% for control group based on CMT (California Mastitis Test), while by using culture as a measure for detecting mastitis cases, new infection rate after parturition were 72%, 64% and 75% for Mastivac®, Startvac® and control group, respectively ($p>0.05$). In general, we observed no significant difference in above-mentioned variables between any 3 groups ($p>0.05$).

Keywords: Mastitis, Vaccine, Dairy Cows.