Impact on the productivity of dairy cattle by the subclinical infection to bovine leukemia virus

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Enzootic bovine leucosis is one of the notifiable diseases in Japan. The number of detected cases has increased gradually and exceeded 1000 since 2008. It is known that less than 5% of cattle that were infected to bovine leukemia virus (BLV) develop the clinical manifestation of leukemia. However, potential impact of subclinical infection on productivity is not clear. We investigated Dairy Herd Performance Test’s (DHPT’s) records of randomly-selected 674 cattle from 43 farms. Among these cattle, 262 (40.5%) were positive to the serum ELISA for BLV. The association between the infection status and the productive performance data including milk yield and other parameters were analyzed using the hierarchical Bayesian model by MCMCglmm package of the statistical computing environment R. In the present analysis, farm was accounted as a random effect, and the parity, calving season, days in lactation and linear score of the somatic cell counts (LSSCC) were considered as possible confounders. As a result, although the mean of the 305-day adjusted milk yield of the infected and uninfected cattle was estimated at 8,753.1 and 8,618.0 kg, respectively, the difference was not significant in the present model (P=0.91). Similarly, no other parameters including milk fat, milk protein, solids non fat, milk urea nitrogen and LSSCC were significantly associated with the infection status (P=0.98, 0.75, 0.25, 0.44 and 0.40, respectively). These results imply the subclinical infection to BLV has no apparent impact on the production performance of dairy cattle. However, these influence may also depend on the stages of the subclinical disease progress, further examination will be needed to evaluate the true impact of the BLV infection on dairy production.