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Serological Evidence of Enzootic Bovine Leukosis in Dairy Cattle Herds in the United Arab Emirates

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Abstract : The present study was done to elucidate the prevalence of enzootic bovine leucosis (EBL) in the UAE, the seroprevalence rates of EBL in dairy herds from the Al Ain area, Abu Dhabi (AD) and indigenous cattle at the Al Ain livestock market (AALM) were assessed. Of the 949 sera tested by ELISA, 657 were from adult Holstein-Friesians from three farms and 292 from indigenous cattle at the AALM. The level of significance between the proportions of seropositive cattle were analyzed by the Marascuilo procedure and questionnaire data on husbandry and biosecurity practices evaluated. Overall, the aggregated farm and AALM data demonstrated a seroprevalence of 25.9%, compared to 37.0% for the study farms, and 1.0% for the indigenous cattle. Additionally, the seroprevalence rates at farms #1, #2 and #3 were 54.7%, 0.0%, and 26.3% respectively. Except for farm #2 and the AALM, statistically significant differences were noted between the proportions of seropositive cattle for farms #1 and #2 (Critical Range or CR=0.0803), farms #1 and #3 (p=0.1069), and farms #2 and #3 (CR=0.0707), farm #1 and the AALM (CR=0.0819), and farm #3 and the AALM (CR=0.0726). Also, the proportions of seropositive animals on farm #1 were 9.8%, 59.8%, 29.3%, and 1.2% in the 12-36, 37-72, 73-108, and 109-144-mo-old age groups respectively compared to 21.5%, 60.8%, 15.2%, and 2.5% in the respective age groups for farm #2. On both farms and the AALM, the 37-72-mo-old age group showed the highest EBL seroprevalence rate while all the 57 cattle on farm #2 were seronegative. Additionally, farms #1 and #3 had 3,130 and 2,828 intensively managed Holstein-Friesian cattle respectively, and all animals were routinely immunized against several diseases except EBL. On both farms #1 and #3, artificial breeding was practiced using semen sourced from the USA, and USA and Canada respectively, all farms routinely quarantined new stock, and farm #1 previously imported dairy cattle from an unspecified country, and farm #3 from the Netherlands, Australia and South Africa. While farm #1 provided no information on animal nutrition, farm #3 cited using hay, concentrates, and ad lib water. To the authors' best knowledge, this is the first serological evidence of EBL in the UAE and as previously reported, the seroprevalence rates are comparatively higher in the intensively managed dairy herds than in indigenous cattle. As two of the study farms previously sourced cattle and semen from overseas, biosecurity protocols need to be revisited to avoid inadvertent EBL incursion and the possibility of regional transboundary disease spread also needs to be assessed. After the proposed molecular studies have adduced additional data, the relevant UAE animal health authorities may need to develop evidence-based EBL control policies and programs.

Keywords : cattle, enzootic bovine leukosis, seroprevalence, UAE
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