

Detection of Equine Herpesvirus Types 1, 2, 4 and 5 from Race Horses with Respiratory Disease

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Purpose: Equine herpesvirus (EHV) causes considerable economical losses to horse racing industry causing respiratory and neurological disease and abortion in pregnant mare. This study was undertaken to determine the prevalence of equine respiratory herpesvirus and seroprevalence of EHV1 in 89 race horses with respiratory diseases. This study is the first investigation of prevalence of respiratory EHV in race horses nasal swab (NS) samples in Korea.

Materials and Methods: Serum and NS samples were collected from 89 Thoroughbred with clinical signs of respiratory disease on Seoul Race Park in 2008. Viral DNA was extracted from NS samples and EHV1, 2, 4 and 5 glycoprotein B gene fragments were analyzed by nested-PCR. All positive PCR products were confirmed by sequencing analysis. EHV-1 antibody titers were measured by virus neutralization test (VNT) from the horse sera.

Results: Respiratory EHV was detected in the NS samples of 43 of the 89 horses. The virus genes detected by nested-PCR and the number of single positives were: EHV1(one samples), EHV4 (four samples), EHV5 (thirty two samples). One horse was triple positive (EHV1, EHV4, EHV5) and five horses were double positive [EHV1 and 4 (one horse), EHV1 and 5 (two horses), EHV2 and 4 (one horse), EHV4 and 5 (one horse)]. Seventy four non-vaccinated horse sera were tested for EHV1 neutralizing antibodies by VNT. EHV1 specific antibodies were detected from all of the horse sera (100%).

Conclusions: In these results, respiratory EHV is prevalent in Korean race horse population and we also show that EHV type 1, 2, 4 and 5 should be involved in diagnosing equine respiratory diseases in race horses. PCR identification of respiratory EHV in NS samples is for the first time in Korea.

Key words: equine herpesvirus, respiratory disease, horse, prevalence, nested PCR

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