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the veterinary
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future

Main topic : Animal Health

The assessment of agreement between point-of-care and traditional real-time PCR assays for Equine herpes virus type 1 detection.

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Introduction

The equine herpesvirus type 1 (EHV-1) is one of the most critical pathogens in equine medicine. EHV-1 is a respiratory pathogen but can cause outbreaks of abortion and neurological disease – equine herpesvirus myeloencephalopathy (EHM). EHM outbreaks can have high morbidity and mortality rates and a significant economic impact on the equine industry. Recent EHM outbreaks during international equestrian events have shown the urgent need for a fast and reliable diagnosis.

Accessing PCR testing for EHV-1 for horses arriving at designated events and a timely diagnosis of EHV-1 infections during events is essential from a diagnostic and biosecurity standpoint. Moreover, there is a need for validated testing that can return rapid results to be available seven days per week.

Tremendous technological progress in recent years provides rapid point-of-care (POC) molecular assay development for human and animal infectious pathogens.

Thus, this study aimed to assess the level of agreement between POC Equine Herpesvirus 1 (EHV-1) Fluxergy Test Kit (Fluxergy, Irvine, CA, USA) and traditional commercial real-time PCR test.

Methods

For the purpose of this study, 124 samples were checked. All samples were the cell line media containing different viruses such as EHV-1, EHV-4, equine influenza virus (EIV), equine arteritis virus (EAV), and negative controls.

The analyses by EHV-1 Fluxergy Test Cards and Fluxergy Analyzer System MK 12.1. were done in different laboratories than regular real-time PCR. All samples have been blinded for analysis.

Cohen's Kappa and Gwet's AC1 tests were used to determine the agreement between the two diagnostic tests.

Results

The observed agreement between tests was 88.7%. Chance-corrected agreement for Cohen's kappa coefficient was 73.8% (CI 95%: 60.9% - 86.8%), while Gwet's AC1 coefficient was 80.2% (CI 95%: 70.4% - 89.9%), indicating a very good tests agreement.

Conclusions

The POC Equine Herpesvirus 1 (EHV-1) Fluxergy Test results agree very well with routinely used real-time PCR.

A strong agreement of the POC Fluxergy EHV-1 test with widely used laboratory method plus a short turn-around time makes the Fluxergy a perfect solution for EHV-1 rapid diagnosis in the field.