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Researchers Evaluate Tests to Detect Heart Damage

Detecting damage to the heart muscle using straightforward blood tests that measure cardiac troponin I (cTnI) and troponin T (cTnT) is routine in human medicine. Such tests play important roles in diagnosing heart disease rapidly and instituting appropriate therapy.

Horses also suffer from various heart conditions—such as valvular insufficiency, endocarditis, and atypical myopathy—and could reap the benefits of such testing, but there is little data supporting human cardiac blood tests' use in horses.

"Troponin is a complex of three proteins—cardiac troponin I, C, and T—that plays an integral role in cardiac muscle contraction," explained Gunther van Loon, DVM, PhD, from the Ghent University's Department of Large Animal Internal Medicine, in Belgium. "When the heart is damaged, those proteins are released from the muscle and circulate in the blood where they can be measured."

Troponin proteins are very similar between species, meaning veterinarians could theoretically use human troponin tests in horses because the proteins "look" the same. While several commercially available cTnI tests are available for use in horses, the different assays yield different results. In contrast, there is only one assay for cTnT, which could be a good alternative to cTnI testing.

To assess cTnT testing in horses and compare it to cTnI assays, van Loon and colleagues collected blood samples from 35 healthy horses in training that were free of cardiac disease, 23 horses suspected to have primary myocardial damage, and 41 horses with secondary myocardial damage caused by structural heart disease (e.g., valvular disease, septal defects, etc.).

"Both cTnI and cTnT levels were higher in horses with primary myocardial disease than the healthy horses and the horses with secondary myocardial disease," van Loon said. "We also found a significant correlation between cTnI and cTnT; however, there were quantitative differences between the two tests."

For example, the optimal cut-off (i.e., the value that distinguishes between normal and abnormal) for cTnI was 95 pg/mL, which was 10 times higher than the cut-off value for cTnT, which was 6.6 pg/mL.

"Both tests were able to distinguish between healthy horses and those with myocardial disease, but it is advisable to use the same test during follow-up examinations of individual horses," van Loon concluded.

The study, "[Cardiac troponin I as compared to troponin T for the detection of myocardial damage in horses](#)," was published in the *Journal of Veterinary Internal Medicine*.