

Differentiating Syncope from Seizure

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In the Literature

Dutton E, Dukes-McEwan J, Cripps PJ. Serum cardiac troponin I in canine syncope and seizures. *J Vet Cardiol.* 2017;19(1):1-13.

FROM THE PAGE ...

Differentiating syncope from seizures can be challenging. This study evaluated the use of serum cardiac troponin I (cTnI) levels to differentiate cardiogenic from neurologic collapse. Cardiac troponin I is a cardiac-specific biomarker that is released when there is significant cardiac myocyte injury. The enzyme is easily measured, and the test is inexpensive to run.

Seventy-nine dogs with history of collapse were divided into groups based on etiology of collapse: generalized epileptic seizure, cardiogenic syncope, epileptic seizure with cardiac disease, vasovagal syncope, or unclassified. Serum cTnI levels of dogs were measured and compared. Although cTnI levels were significantly increased in cardiogenic syncope patients as compared with epileptic or vasovagal patients, overlap in levels between the groups decreased the discriminatory power of the test for individual dogs. Thus, clinicians must continue to rely on thorough and thoughtful history and description of the event as well as subtle physical examination findings.

The clinical history and physical examination often provide clues about underlying cause. Detailed descriptions of the episodes and preceding events, presence or absence of prodromal signs, and mentation/behavior following the event should be determined. A thorough cardiac, neurologic, and orthopedic physical examination is crucial.

The diagnostic approach can be directed by key questions about patient history (eg, whether there was a precipitating event or preictal phase, how long the episode lasted). Many owners report the event lasted “a long time” because it was frightening; however, when timed, a syncopal event is short. Owners should also be asked if there

was a recovery phase, whether this phase passed quickly, and whether the pet returned to normal afterward.

During a syncopal episode, an animal can collapse into lateral recumbency, and its limbs may become rigid. Opisthotonic posture, micturition, and vocalization are common with syncopal events; however, facial twitching, persistent tonic-clonic motion, defecation, prodromal aura, postictal dementia, and neurologic deficits are not. Profound hypotension or asystole can cause hypoxic “convulsive syncope” with seizure-like activity or twitching. Presyncope, in which reduced brain perfusion or substrate delivery is not severe enough to cause unconsciousness, may appear as transient wobbliness or weakness, especially in the pelvic limbs.

... TO YOUR PATIENTS

Key pearls to put into practice:

- 1 Differentiating between seizure and syncope is important, as the subsequent diagnostic approach can vary significantly.
- 2 Asking owners key history questions and performing a thorough cardiac, neurologic, and orthopedic examination are critical in helping differentiate syncopal versus seizure events.
- 3 Because of overlap in serum cTnI levels, this assay should not be used as a standalone test for differentiating syncope from seizure.