IGF-1 in the Equine Movement Disorder: Shivers
Shivers
Shivers is a rare movement disorder in adult horses that causes difficulty walking backwards and lifting the hindlimbs for the farrier. It progresses in 50% of the cases.
The age of onset of the first symptoms lies between 2 and 10 years of age.
Draft horses are more often affected than tall Warmbloods and Thoroughbreds.
Male horses are 5 times more often affected than females.
Most affected horses are 16:3 hands or taller.
Shivers is characterized by degenerative changes in the distal axons of Purkinje Cells in the Cerebellum.

Purkinje Cells modulate cerebellar neuron activity and therefore influence motoric learning.
Examples of a horse with a movement pattern seen in progressive Shivers, with difficulty to back up and even walk forward, but as typical for Shivers, normal trott and canter movement, as well as very good ability to jump.
Insulin-like Growth Factor 1 (IGF-1)
Studies have found that IGF-1 also takes part in neuromodulation and can be altered in different neurodegenerative diseases.

Useful marker for measurement of Growth Hormone, due to the stable levels throughout the day.

Levels depend on age, sex, height and breed.

Males have higher base levels than females.

IGF-1 peaks in the 2 main growth phases of the body, right after birth and during puberty.

Taller horses have higher base values than smaller ponies.

Base Values differ from breed to breed.
Problems:
The exact pathophysiology of Shivers is unknown.

No diagnostic test aside from a physical examination is available.

No treatment aside from keeping the horse active in training and decrease of general stress possible.

Questions:
Due to the fact, that IGF-1 concentrations can differ in patients with neurodegenerative disorders, could the IGF-1 levels in Shivers horses be abnormal?

If they differ, could IGF-1 be useful as a potential diagnostic marker for Shivers?

Methods:
Comparison of IGF-1 levels in healthy control horses and horses with Shivers.
Sources

Videos: Stephanie Valberg, DVM, PhD, DACVIM, ACVSMR
Draper AC1, Bender JB, Firshman AM, Baird JD, Reed S, Mayhew IG, Valberg SJ. Epidemiology of shivering (shivers) in horses. Equine Vet J. 2015 Mar;47(2):182-187