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Novel insights into the management of atypical myopathy in grazing horses based on recent series of European outbreaks and advances in etiological investigations

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Atypical myopathy is a pasture-associated syndrome characterised by the sudden onset of acute rhabdomyolysis not associated with exercise. This frequently fatal acquired condition is intimately linked with the environment. In Europe, large clinical series occur primarily in autumn (van Galen et al. 2010). About one thousand cases of this emergent condition have been reported since the new millennium by the “Atypical Myopathy Alert Group” (AMAG; http://www.myopathieatypique.be).

Lately, major advances have been made in the understanding of the pathophysiology of the condition and causative hypothesis. The metabolic defect occurring in atypical myopathy affects mitochondrial fatty acid energy metabolism but not the use of carbohydrates for energy supply (Westermann et al. 2008). The development of atypical myopathy is probably multifactorial but the condition has been associated with Clostridium sordellii lethal toxin (Unger-Torroledo et al. 2010). However, no specific treatment of the condition exists and the most effective way of controlling the disease is prevention including specific management practices at the horse and pasture levels (Votion et al. 2009).

The information given in this review is based on findings from recent series of European outbreaks. This review aims at helping equine practitioners in the recognition and handling of suspected cases in the event of atypical myopathy outbreaks.

Diagnosis of atypical myopathy
A presumptive diagnosis of atypical myopathy is based on history (i.e. the sudden onset of clinical signs consistent with an acute myopathic process in horses kept at pasture at least 6 hours a day), clinical signs (compatible with an acute rhabdomyolysis syndrome), laboratory findings (mainly extremely high levels of serum activities of creatine kinase; CK) and post-mortem examination. The definite diagnosis is based on specific histological findings in the affected muscles (i.e. severe and multifocal lesions of Zenker’s degeneration in postural and respiratory muscles) and/ or analysis of urine samples looking for characteristic profiles of organic acids, glycine conjugates, and acylcarnitines (Westermann et al. 2008).

The syndrome usually starts with sudden pronounced muscular weakness and stiffness. Within hours, affected horses adopt lateral recumbency and about 74% of horses die within 72 h. Supportive therapy should be tempted only when the pain appears moderate. The prognosis is poor when horses are recumbent, show sweating, myoglobinuria, hypothermia, anorexia, congestive or cyanotic mucous membranes, dyspnoea, tachypnoea and/or tachycardia. Prognosis is somewhat more favourable if the patient remains standing, and shows a normal respiration and a preserved appetite.

Therapeutic measures and management of cases
Although the prognosis for survival is poor, some horses survive and then can recover fully. The clinical management of horses is largely supportive and symptomatic including correction of fluid deficits and electrolyte and acid-base disturbances.
The medical management should aim also at providing energy based on carbohydrates that may be used by the affected muscles rather than lipids. It is worth noting that only vitamins and antioxidants appear to increase the chance to survive whereas other treatments aim at limiting the consequences of the acute rhabdomyolysis process. Administration of botulism type C and D antiserum has also been proposed. When atypical myopathy is detected in a pasture, pasture companions should be stabled and checked for at least five days.

**Epidemiology**

Based on the study of European outbreaks, recommendations for preventives measures have been established (Votion et al. 2009):
- restrict access to pasture of young and old horses when clinical series start;
- perform regular deworming and vaccination of horses;
- exercise horses regularly (inactive horses are at an increased risk);
- consider specific preventive measures during the risky seasons (i.e. autumn and spring);
- reduce the time on pasture when inclement weather is forecast;
- give only access to dry and luscious pastures during the at risk seasons;
- avoid pastures with an history of horse(s) mortality during the at risk seasons;
- remove dead leaves and dead wood from the pasture and avoid mechanical harrowing;
- during outbreaks in the region, stable horses or reduce the time spent at pasture;
- supplementary feed given throughout the year decreases the risk of atypical myopathy;
- avoid giving hay in a humid environment and remove any potential toxic plants and/or moulds;
- bar access to humid areas for beverage during the risky seasons;
- provide a salt block throughout the year.

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**Reference list**


