Four horses from the same farm were examined on sequential days for acute onset of severe muscle fasciculations, tachycardia, sweating and periods of recumbency. All were kept in a paddock with minimal pasture coverage but extensive growth of *Malva parviflora*, which they were grazing. Feed supplementation was minimal. Horse 1 was euthanized on the farm due to rapid clinical deterioration. Horse 2 was referred for hospital care where it was determined to have severe myocardial disease and generalised myopathy; this horse was euthanized due to prolonged recum bency and severe cardiac arrhythmias 36 h after admission. Horse 3 died during transport to hospital, and horse 4 was euthanized at onset of clinical signs. Post mortem examinations performed on horses 2, 3 and 4 revealed acute, multifocal, monophasic myocarditis and skeletal muscle. Myocyte glycogen accumulation was absent (PAS stain; horse 2). Acyl carnitine profiles were performed on serum from horses 2 and 4 and 4 equine controls. These revealed increased C14-C18 acyl carnitines in cases relative to controls. Malvaceae sterol as and dihydrosesicate acids (present in *Malva parviflora*) were grossly increased in sera of cases relative to controls. The prominent cardiac component and different acyl carnitine profile suggests a different aetiology to atypical/seasonal pasture myopathy. We hypothesise that these cyclo propene fatty acids found in *Malva parviflora* interfere with fatty acid beta-oxidation in horses in negative energy balance, causing the clinical signs and abnormal acyl carnitine profiles. These equine cases closely resemble the human genetic condition Very Long Chain Acyl CoA Dehydrogenase Deficiency.

PRELIMINARY VALIDATION STUDY OF PARAOXONASE-1 IN HORSES, F. Bonelli1, M. Sgorbini1, A. Giordano2, S. Patrini3, 1Department of Veterinary Sciences, San Piero a Grado (Pi), Italy, 2Department of Veterinary Sciences and Public Health, Milan, Italy

Paraoxonase-1 (PON-1) is an anti-oxidant enzyme associated with high-density lipoproteins in blood. PON-1 is a negative acute-phase protein being its plasmatic activity reduced during infections due to consumption by the possible clinical usefulness of PON-1 as an early inflammatory marker this is a preliminary validation study in horses.

Serum PON-1 activity was measured in 69 clinically healthy animals (31 adult females, 18 geldings, 11 stallions, 9 foals) using an enzymatic method adapted from other species. In order to preliminarily assess the possible utility of PON-1 as a marker of Systemic Inflammatory Response Syndrome (SIRS), blood from 6 sick foals, classified according to a validated SIRS scale, was analyzed. Intra- and inter-assay imprecision were assessed by repeated analysis of pooled samples and evaluation of coefficient of variations (CV). Accuracy was indirectly evaluated through linearity under dilution (LUD) and spiking recovery test (SRT). Results of the different groups of healthy horses were compared to each other with a Friedman test with Bonferroni correction. The method is precise (inter- and inter-assay CVs <5%) and accurate (LUD and SRT fit the linear model). PON-1 activity was higher in foals and in adult females (mean ± SD: 63.7 ± 15.5 and 60.8 ± 10.1, respectively) than in geldings and adult males (52.5 ± 10.2 and 47.2 ± 7.7, respectively). In 5/6 SIRS foals PON-1 activity was lower than the lowest percentile of distribution of healthy foals. This study demonstrated that the method of measurement of PON-1 activity in horses is precise and accurate and PON-1 may be a marker of SIRS.