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The Epidemiology of Summer Eczema in Icelandic Horses (28-Jun-2004)

S. Björnsdóttir ¹, J. Sigvaldadóttir ², M. Hellsten ³ and R. J. Reiher ⁴

¹Institute for Experimental Pathology, University of Iceland, Keldur, Reykjavik, Iceland.

^{2,3} Icelandic Veterinary Service, Reykjavík, Iceland.

⁴Hvanneyri Agricultural University, Borgarnes, Iceland.

Summer eczema (SE) is an allergic reaction to the bite of *Culicoides* spp. Due to the absence of the biting midges in Iceland, the disease is not seen in the native horse population but is a serious problem in Icelandic horses living abroad. SE is therefore a threat to the export of horses and the horse industry in Iceland.

A clinical study was performed to estimate the prevalence of SE in Icelandic horses that had been exported and to analyze the influence of environmental and genetic factors. The material consisted of 330 Icelandic horses exported to Denmark, Sweden and Germany. SE was diagnosed in 114 of the horses or 34.5%. If more than two years had passed since export (n=213), the prevalence was 49.5%. For horses that had lived for more than two years in areas known to be heavily infested by *Culicoides* spp. (n=130), the prevalence was as high as 54%. Information about the time of onset of the disease was available for 49 horses and ranged from 1 to 8 year after export. Most commonly the first signs of SE were detected 2 years after export (mean 2.4 years). Additional 191 horses exported to Norway and Sweden were examined clinically for SE. Horses that had been living on areas known to be infested by *Culicoides* spp. for two years or longer were selected. Eighty nine of them or 46.6% were found to have SE.

For comparison, the prevalence of SE in the population of Icelandic horses born in Germany was estimated by an interview of the owners of 651 horses. For horses in the age range of 3 - 13 year, 6.3 % were affected by SE. The mean age when the first signs were recognized was 2.4 years, ranging from 1 to 6 year.

No significant association was found between sire and the prevalence of SE in exported horses. However, genetic influence on the disease has not been ruled out and a whole genome scanning of blood samples from horses with and without clinical signs of SE is now under process with the aim to identify genetic markers associated with the disease. For horses born in Germany, the prevalence was significantly higher if the parents (one or both) were affected by SE.

It was concluded that exported Icelandic horses are predisposed for SE as a result of a lack of exposure to the biting midges in the early live and the great environmental changes following the export. The Icelandic horse does not seem to be more sensitive for the disease compared to other breeds, if the horses are born in the same environment, inhabited by the "responsible" insect.

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