

# Equine grass sickness in Scotland: A case–control study of signalment- and meteorology-related risk factors

C. E. WYLIE, D. J. SHAW, F. M. FORDYCE<sup>†</sup>, A. LILLY<sup>‡</sup> and B. C. MCGORUM<sup>\*</sup>

Royal (Dick) School of Veterinary Studies & Roslin Institute, Easter Bush Veterinary Centre, University of Edinburgh, UK

<sup>†</sup>British Geological Survey, Edinburgh, UK.

<sup>‡</sup>James Hutton Institute, Aberdeen, UK

C.E. Wylie's present address is: Universitat Autònoma de Barcelona, Departament de Medicina i Cirurgia Animals, Bellaterra, Barcelona, Spain.

<sup>\*</sup>Correspondence email: [bruce.mcgorum@ed.ac.uk](mailto:bruce.mcgorum@ed.ac.uk);

## Summary

**Reasons for performing study:** Equine grass sickness (EGS) remains a frequently fatal disease of equids in Britain. Since previous investigations of

signalment- and meteorology-related risk factors for EGS have yielded some conflicting data, further investigation is warranted.

**Objectives:** To identify signalment- and meteorology-related risk factors for EGS in Scotland.

**Study design:** Retrospective time-matched case–control study.

**Methods:** This study was undertaken using data for 455 EGS cases and 910 time-matched controls that were referred to the Royal (Dick) School of Veterinary

Studies and average UK Meteorological Office weather station meteorological values from the month of admission of the animal, from the 3, 6 and 12 months prior to admission, and for the entire 1990–2006 period.

**Results and conclusion:** Signalment-related risk factors associated with an increased risk of EGS were native Scottish pure breeds compared with crossbreeds (odds ratio [OR] = 3.56, 95% confidence interval [CI] 2.43–5.43) and animals living on premises located further north within the study region (OR = 1.08, 95% CI 1.06–1.10). There was a decreased risk of EGS in animals aged 11–20 years compared with animals 2–10 years (OR = 0.32, 95% CI 0.22–0.45), non-native Scottish pure breeds compared with crossbreeds (OR = 0.71, 95% CI 0.54–0.94), and stallions compared with mares (OR = 0.43, 95% CI 0.22–0.86).

Meteorology-related risk factors associated with an increased risk of EGS were (if Ordnance Survey northing is excluded) more sun hours (OR > 1.43) and more frost days (OR > 1.13), while there was a decreased risk of EGS with higher average maximum temperature (OR < 0.83).

**Potential relevance:** The signalment-related risk factors will help owners identify high-risk animals, thereby allowing them to prioritise management

strategies. The identification of meteorological risk factors may assist studies on the aetiology of EGS.

**Keywords:** horse; equine grass sickness; dysautonomia; epidemiology; signalment; weather