

A CASE-CONTROL STUDY ON RISK FACTORS FOR BOVINE SPONGIFORM ENCEPHALOPATHY ON SWISS DAIRY FARMS

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Une étude cas-témoin a été initialisée afin de rechercher les facteurs de risque de l'apparition de l'encephalopathie spongiforme bovine (ESB) en Suisse. Un questionnaire d'élevage a été rempli directement dans 165 élevages laitiers atteints par l'ESB entre 1990 et Décembre 1995, ainsi que dans 157 élevages laitiers sélectionnés dans les mêmes localités. Les données collectées concernaient la structure et les pratiques d'élevage, notamment l'alimentation des bovins au cours des années passées. Les analyses univariées préliminaires ont montré en outre que les éleveurs ayant donné de l'ensilage avaient eu une probabilité moindre d'être affectés par l'ESB que les autres éleveurs. L'alimentation des vaches avec des aliments concentrés était positivement associée à l'apparition de l'ESB. Des analyses complémentaires, notamment des analyses multivariées, étaient en cours pour finaliser cette étude. Les résultats finaux seront publiés en temps utile.

INTRODUCTION

The epidemic of BSE in Switzerland was reported as the second largest in the world after the UK. With 68 cases the peak was reached in 1995, followed by a decrease in 1996 (45 cases) and 15 cases until April 1, 1997. The Swiss epidemic is based on the hypothesis that contaminated feed concentrates, imported directly or indirectly from the UK, were fed to cattle. A case-control study was designed to investigate major risk factors with particular reference to past feeding of cattle for the occurrence of BSE in Switzerland (Mueller et al. 1997).

STUDY DESIGN

Data at the level of the farm and individual animal were collected by interviews from 165 dairy farms affected by BSE between 1.1.1990 to 31.12.1995 and from 157 randomly selected, neighborhood-matched control farms. These data focused on potential risk factors related to the farm and feeding management. In addition, on case farms, information on the nature of the disease process was collected. Since one third of the BSE animals were cattle bought from other farms, data on animal feeds were also obtained from previous owners.

RESULTS

Risk factors analyses were carried out using the data in an unmatched design (322 farms), in matched pairs of farms (142 pairs) as well as restricted to matched pairs selected to homebred BSE cases. Univariate analyses revealed only a few significant associations. Case farms had a significantly larger farm area than control farms (paired: $p=0.04$; paired-homebred $p=0.01$). All subset analyses showed that farms with silage storage were significantly less likely to experience BSE (unpaired OR=0.64 {95%CI 0.41-0.99} to paired-homebred 0.28 {95%CI 0.08-0.78} $p<0.05$). Pig keeping was two-fold more likely on homebred case farms than on their respective paired control farms ($p=0.02$). Calfhood feeding focused on the use of milk substitutes, nutrition powder and rearing feeds for calves. None of these factors nor the common method of feeding cow's concentrates to calves showed any associations. Only feeding proprietary concentrates to milk cows showed a statistically increased BSE risk (paired OR=1.82 {95%CI 0.98-3.51} $p=0.04$; to paired-homebred 2.67 {95%CI 1.2-6.51} $p=0.01$).

DISCUSSION

The significance of silage feeding, and other feeding variables as possible causal factors for BSE will be discussed. For instance, feeding of proprietary concentrates could not be shown as a confounding factor for silage feeding in this analysis. Complex interrelationships between variables point to the need for further in-depth analyses using comprehensive multivariate models.

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REFERENCE

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