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The surveillance and control programme for Chronic Wasting Disease (CWD) in wild and captive cervids in Norway 2012

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Surveillance and control programmes for terrestrial and aquatic animals in Norway

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The surveillance and control programme for Chronic Wasting Disease (CWD) in wild and captive cervids in Norway 2012

Turid Vikøren, Ståle Sviland, Petter Hopp, Sylvie Lafond Benestad

Chronic wasting disease (CWD) was not detected in any of the animals tested in 2012.

Introduction

CWD is a transmissible spongiform encephalopathy (TSE) of cervids (1, 2, 3). A few species of the family *Cervidae* are known to be naturally susceptible to the disease: mule deer (*Odocoileus hemionus*), white-tailed deer (*O. virginianus*), Rocky Mountain elk (*Cervus elaphus nelsoni*), and moose (*Alces alces shirasi*). Chronic wasting disease occurs in free-ranging and captive cervids in North America, and has also been diagnosed in captive deer in South Korea in connection with deer imported from Canada. The disease is yet to be diagnosed in cervids in Europe.

Four cervid species are prevalent in natural populations in Norway: moose (*Alces alces*), red deer (*Cervus elaphus*), roe deer (*Capreolus capreolus*), and reindeer (*Rangifer tarandus*). Red deer predominate along the west coast, whereas moose and roe deer mainly inhabit other areas of the country. The wild reindeer live in dispersed populations in separate high mountain areas in southern Norway. The number officially hunted in 2012 was: 34600 moose, 35,100 red deer, 25,900 roe deer, and 5,400 wild reindeer. Additionally, Norway has a semi-domestic reindeer population, mainly kept in the northern parts of the country, presently counting about 250,000 animals. There are approximately 85 deer farms in Norway, and 85% of them keep red deer, whereas the rest keep fallow deer (*Dama dama*).

Norway has large free-ranging populations of various cervids, a number of them grazing in regions where scrapie is detected, and a passive surveillance programme for CWD in Norwegian wild and captive cervids has been running from 2003. In addition, samples from slaughtered semi-domestic reindeer from several regions in the country have been tested for CWD. Norway performed an EC survey for CWD in cervids in 2006 and 2007 according to Commission decision 2007/182/EC. All samples were negative for CWD.

Aim

The aim of the programme is to detect the possible occurrence of CWD in the Norwegian cervid population.

Material and methods

Material

Captive deer and wild cervids older than 18 months necropsied at the Norwegian Veterinary Institute were examined for CWD. Additionally, some wild cervids older than 18 months that died or were euthanized due to disease or injuries were sampled in the field. The number and species analysed for CWD in 2012 are given in Table 1.

Methods

A rapid test (either TeSeE[®] Bio-Rad or TeSeE Sheep & Goat[®] ELISA, Bio-Rad) was used to screen brain samples for detection of the PrP^{CWD}. All the samples were analysed at the Norwegian Veterinary Institute, which is the Norwegian Reference Laboratory for animal TSEs.

Results

None of the 21 samples analysed tested positive for CWD in the rapid test (Table 1).

Totally 8 of the tested animals were exclusively examined for CWD whereas the remaining 13 animals represent cases received at the Norwegian Veterinary Institute for routine necropsy (Table 1). Nine of the tested animals were captive deer and one was a captive moose in a wildlife park.

Table 1. The number of cervids tested in the Norwegian surveillance and control programme for chronic wasting disease (CWD) 2012, distributed by reason for submission.

| Species | Routine necropsy | | TSE surveillance programme | | | | Total |
|--------------|------------------|----------|----------------------------|----------------|----------------------|----------------------|-----------|
| | Captive | Wild | Wild | | | Captive | |
| | | | Hunted | Traffic killed | Found dead or culled | Found dead or culled | |
| Moose | 1 | 4 | - | - | - | - | 5 |
| Fallow deer | 3 | - | - | - | - | - | 3 |
| Red deer | 1 | 4 | - | - | - | 5 | 10 |
| Reindeer | - | - | - | - | - | - | - |
| Roe deer | - | - | - | 3 | - | - | 3 |
| Total | 5 | 8 | 0 | 3 | 0 | 5 | 21 |

Discussion

No animals were positive for CWD in 2012. The number of cervids tested was small.

Among the Norwegian cervid species, a higher risk for CWD can be assumed for red deer and moose since these species are among those known to be naturally susceptible to the disease (1- 4). Roe deer and reindeer have so far not been found naturally infected with CWD, however experimental studies have shown that reindeer is susceptible to the disease (5).

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The Norwegian Veterinary Institute has its main laboratory in Oslo, with regional laboratories in Sandnes, Bergen, Trondheim, Harstad og Tromsø, with about 360 employees in total.

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The NFSA advises and reports to the Ministry of Agriculture and Food, the Ministry of Fisheries and Coastal Affairs and the Ministry of Health and Care Services.

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