CHRONIC WASTING DISEASE IN UK DEER UPDATE

ISSUE

1. At SEAC 85, SEAC reviewed the possible public and animal health implications of chronic wasting disease (CWD) in UK deer and produced a position statement. The committee concluded that CWD currently poses relatively little risk to human health, or to the health of cattle, sheep or goats in the UK. Nevertheless, as a risk cannot be excluded a watching brief should be maintained. In response to the recommendation that a watching brief be maintained, the SEAC secretariat have produced a review of the research on CWD published since 2004.

BACKGROUND

2. CWD is the only known transmissible spongiform encephalopathy (TSE) to occur naturally in cervids. The disease is endemic in a number of captive and free-ranging cervid species (mule deer, white-tailed deer, Rocky Mountain elk and moose) in many areas of North America. With the exception of deer imported into South Korea, CWD has not been detected elsewhere in the world. CWD is naturally transmissible from infected to susceptible cervids and although the primary route(s) of infection remain unclear it is possible that it may be transmitted via contaminated environments. The origins of the disease are unknown.

3. CWD is experimentally transmissible to non-cervid species by intracerebral inoculation. However, oral transmission of CWD has only been successful to North American cervid species. It is unclear whether CWD could be naturally transmitted to other cervid and non-cervid species.

4. There have been no reported cases of transmission of CWD to humans through the consumption of infected venison. There is however limited epidemiological data on possible transmission of CWD to humans through this route.

5. It is probable that captive and free-ranging deer species in the UK were exposed to contaminated mammalian meat and bone meal

prior to its ban in 1996. Studies investigating experimental transmission of BSE to cervids are ongoing. Although no TSEs have been detected in deer populations in the UK or elsewhere in Europe, surveillance data are limited. As such it remains possible that BSE may have been transmitted to UK deer which could present a risk to consumers of venison.

PREVIOUS SEAC ADVICE

6. At SEAC 85, SEAC considered the possible public and animal health implications of CWD in UK deer based on a review of published, and some unpublished, research on CWD, together with surveillance data on TSEs in European cervids and information on UK cervid populations. The committee also considered the possibility that BSE may be present in UK deer. A position statement summarising SEAC's consideration was produced[1].

REVIEW OF CWD RESEARCH

7. To address a recommendation made in the SEAC position statement on CWD to keep a watching brief on emerging research on CWD, a review of the published scientific literature from October 2004 to May 2006 on CWD has been prepared by the SEAC Secretariat (see Annex 1). The original literature review is also provided at Annex 4 for ease of reference.

Summary of new research

8. In summary the new information shows that:

- to date, only one strain of CWD has been identified conclusively however, limited research had shown the possible presence of a further strain.

- the geographical distribution of CWD in cervids continues to widen in North America. No cases of TSE infection have been identified in surveys elsewhere in Europe or elsewhere in the world with the exception of an imported case of CWD in South Korea, although the surveys in deer have been limited.

- the host range broadened with confirmation of a first case of CWD in free ranging moose in September 2005.

[1] SEAC (2004) Chronic wasting disease in UK deer. http://www.seac.gov.uk/statements/state180105.htm

- it is possible that TSEs may be transmitted via contaminated soils lending support to existing evidence on the possibility of environmental transmission of the CWD.

- the susceptibility to, and incubation period of, CWD in elk is influenced by polymorphisms in codon 132 of the elk prion protein gene.

- after more than 7 years following oral inoculation of cattle with CWD-infected brain tissue, cattle show no clinical signs of CWD.

- cattle intracerebrally (ic) inoculated with CWD infected brain tissue develop neuropathological patterns distinct from those of BSE infection.

- PrP^{CWD} can be detected in the skeletal muscles of CWD infected cervids by bioassays using transgenic mice expressing the cervid PrP.

- CWD has been transmitted to non-human primates but not to humanised mice after ic inoculation of brain material from CWD infected cervids.

FSA RESEARCH ON TSEs IN DEER

9. A FSA funded study continues to investigate whether UK red deer are susceptible to BSE infection by oral or ic challenge (Annex 2). The study is set for completion in 2007. To determine the preclinical status of deer a rectal biopsy method has been employed with samples taken every 6 months from all remaining animals in the study. To date, there are no clinical or pathological signs of BSE in orally or ic challenged animals at 26 and 20 months respectively. Please note that Annex 2 has not been circulated outside the committee as it contains new scientific data that has not yet been published in a scientific journal.

ADVICE SOUGHT FROM THE COMMITTEE

10. The SEAC position statement on CWD has been revised to reflect the new data (see Annex 3). Members are requested to consider the new research published on CWD and comment on and agree the revisions to the statement.

A review of research on chronic wasting disease published since November 2004

SEAC Secretariat

A summary of Food Standards Agency research on the susceptibility of UK red deer to BSE

Proposed revision of the SEAC position statement on chronic wasting disease in UK deer.

Changes from the current statement are highlighted

SEAC
Spongiform Encephalopathy Advisory Committee

A review of the science on chronic wasting disease (October 2004)

Wildlife Information Network