

POLICY: IN CONFIDENCE

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From: T W S Murray

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BOVINE SPONGIFORM ENCEPHALOPATHY (BSE)Research Study: Transmission of BSE to Primate (Marmoset)

1. This note advises of a significant further development arising from research work on the BSE infectious agent. There has been confirmation of the first case of laboratory transmission of BSE to a primate. News of this development has not yet been made public but there is always a risk that details will leak out and attract media attention before a formal DH/MAFF co-ordinated announcement can be made.

2. A background note on the study and interim line to take is attached.

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92/02.14/3.1

IN CONFIDENCE

TRANSMISSION OF BSE TO PRIMATENew Findings

Transmission of brain material from a cow with Bovine Spongiform Encephalopathy (BSE) to marmosets has been reported from the Medical Research Centre at Northwick Park.

Two marmosets were inoculated intracerebrally with BSE material in February 1988 and both developed symptoms consistent with spongiform encephalopathy in December 1991, nearly four years later.

One animal was sacrificed on 7 February 1992 and histopathological examination of the brain, performed at the Central Veterinary Laboratory, has confirmed the presence of severe spongiform encephalopathy. The other animal, though symptomatic, is still alive.

Details of the titre of infectivity in the material used for inoculation are not known.

A further two marmosets were inoculated in parallel by the same route but with scrapie agent. Both developed symptoms of Spongiform encephalopathy and death occurred after a mean interval of 41 months (ie at least 6 months sooner than for the BSE inoculated animals).

Histopathological information concerning the similarities of the findings in the BSE-infected marmoset brain to that found in other marmoset encephalopathies due to scrapie agent or Creutzfeld-Jacob Disease (CJD) is not yet available.

This is the first transmission of BSE to a primate.

Significance of New Findings

1. Transmission of other SE agents to primates, including marmosets, has occurred in the past, and is well recorded. CJD, kuru and scrapie agent have been successfully transmitted to primates.
2. This present transmission has occurred after intracerebral inoculation and, although the infective titre is not known, this does not have any reference to infectivity via the oral route.
3. The finding is not therefore particularly unexpected, although interesting. Moreover, it does not have any particular implications for human health with respect to BSE agent.

4. We know BSE is capable of affecting a wide species range (for instance, mice, cats, antelopes and pigs). The only conclusion we can draw from this finding is that BSE does affect marmosets, but apparently after a longer time than scrapie agent.
5. We remain uncertain as to the transmissibility of BSE via the oral route. Oral transmission of BSE affected brain material has only been demonstrated in mice.

Action

As a primate is affected, in view of any potential for the development of human disease, DH is taking this finding seriously. We are consulting with independent expert members of the Tyrrell Committee, which advises the Government on all matters relating to SE's.

The MRC are not releasing a press statement today and we are waiting for confirmation of the MAFF line. We understand they will wish to wait until next week before making this information public. It is vital we at DH co-ordinate our response with MAFF, though perhaps in this instance our interest might be greater than MAFF's as primates are one step removed from humans.

Dr Ailsa Wight
14 February 1992

LINE TO TAKE

DH and MAFF closely monitoring research developments in the BSE field on a broad front and are aware of the recent (Marmoset) results.

At this stage there would seem to be no significant implications for present BSE control measures. However, the Tyrrell Committee has been asked to give special consideration to the study results.

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SPONGIFORM ENCEPHALOPATHY ADVISORY COMMITTEE

EXPERIMENTAL TRANSMISSION OF BOVINE SPONGIFORM ENCEPHALOPATHY
(BSE) TO MARMOSETS

1. The Committee has considered the implications of recent work by the Medical Research Council and MAFF in which two marmosets were inoculated experimentally with BSE. Nearly four years after inoculation, they became sick. One has been killed and has been shown to have had spongiform encephalopathy (S.E).
2. These animals were inoculated into the brain and peritoneal cavity with a massive dose of material from the brain of a cow affected with BSE. From studies of other spongiform encephalopathies, this method of giving the agent is far more likely to lead to disease than giving it by mouth.
3. Although marmosets have not previously been infected with BSE, they have been infected with S.E's including scrapie using similar methods so the results of this experiment are not surprising.
4. We conclude that the measures at present in place provide adequate safeguards for human and animal health.

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ANNEX II

To ask the Minister of Agriculture, Fisheries and Food if he will make a statement about the experimental host range of Bovine Spongiform Encephalopathy.

DRAFT REPLY

It has been known for some time that, under experimental conditions, BSE can be transmitted to a range of species - mice, cattle, sheep, goats and pigs. In most cases, this has been accomplished only by direct inoculation of large doses of infectious material from cows affected with BSE, although mice have also succumbed after being fed with large quantities of infected cattle brain.

As part of this programme of work designed to clarify the range of species susceptible to BSE, an experiment conducted by the Medical Research Council and MAFF has resulted in BSE being transmitted to a marmoset, following inoculation of cattle brain material derived from a BSE affected cow into its brain and other tissues.

Although it was already known that marmosets were susceptible, under similar artificial conditions, to other spongiform encephalopathies, the Spongiform Encephalopathy Advisory Committee, chaired by Dr David Tyrrell, were immediately asked to advise on the implications of this experiment. The Committee concluded that the results of the experiment were not surprising and that the measures already in place provide adequate safeguards for human and animal health. I am arranging for a copy of this advice to be placed in the Library of the House.