BOVINE SPONGIFORM ENCEPHALOPATHY IN THE UNITED KINGDOM

From World Health Organization Fact Sheet 113, March 1996

Bovine Spongiform Encephalopathy (BSE) first came to the attention of the scientific community in November 1986 with the appearance in cattle of a newly-recognized form of neurological disease in the United Kingdom. Between November 1986 and May 1995 approximately 150,000 cases of this newly-recognized cattle disease were confirmed from approximately 33,500 herds of cattle in the UK. Epidemiological studies in the United Kingdom at that time suggested that the source of disease was cattle feed prepared from carcasses of cattle, and that changes in the process of preparing cattle feed introduced in 1981-1982 may have been a risk factor. Speculation as to the cause of the appearance of the disease in the food chain of cattle has ranged from spontaneous occurrence in cattle, the carcasses of which then entered the cattle food chain, to entry into the cattle food chain from the carcasses of sheep with a similar disease.

BSE is associated with a transmissible agent, the nature of which is not yet fully understood. The agent affects the brain and spinal cord of cattle and is characterised by sponge-like changes visible with an ordinary microscope. It is a highly stable agent, resisting heating to normal cooking temperatures and even higher temperatures such as those used for sterilisation, freezing, and drying. The disease is fatal for cattle within weeks to months of its onset.

By May 1995, BSE had been reported from 10 countries and areas outside the United Kingdom. In one group of countries - France, Portugal, Republic of Ireland and Switzerland - the disease occurred in native cattle, and this was thought to be in part related to importation of cattle feed from the UK. In another group - Falkland Islands (Las Malvinas), Oman Sultanate, Germany, Canada, Italy and Denmark - cases were only identified in cattle imported from the UK.

In July 1988 the UK banned the use of cattle carcasses in the preparation of cattle feed, and in 1989 the UK banned the use of brain and spinal cord - as well as tonsil, thymus, spleen and intestine - of cattle origin (known as Specified Bovine Offals or SBOs) in foods for human consumption. Cattle are continuously monitored for BSE in all affected countries, and BSE is decreasing in the UK.

BSE is one of several different forms of transmissible brain disease of animals. Others include scrapie, a disease common in sheep; a similar neurological disease in animals such as the mink, mule deer and elk; and, recently, neurological disease in household cats, the majority of which appear to have been in the United Kingdom.

Diseases in humans with sponge-like findings in brain under the microscope, and with severe and fatal neurological signs and symptoms, include kuru, a disease which appears to be transmitted by human ritual handling of bodies and brains of the dead, and Creutzfeldt-Jakob disease (CJD). CJD occurs in a form associated with a hereditary predisposition (approximately 10% of cases), and in a more common, sporadic form that accounts for the remaining 90%. In recent years, it has been shown that CJD can be transmitted to humans by treatment with natural human growth hormone or grafting of tissues surrounding the human brain, and these means of transmission have now been controlled in the industrialised countries where these procedures were practised. Another similar human disease is Gerstmann-Straussler syndrome which appears to be familial.

After the identification of BSE, and as a regular activity to continue the study of the possible hazards of BSE for humans, the World Health Organization (WHO) held three meetings on the spongiform encephalopathies in 1991, 1993 and 1995, and one in collaboration with the Office of International Epizootics in 1994. The purpose of these meetings was to review the existing state of knowledge on spongiform encephalopathies including BSE, to evaluate possible means of transmission and to identify risk factors for infection. An express purpose of these meetings was to review the possible human public health implications of animal spongiform encephalopathies, with special emphasis on BSE.

The most recent WHO meeting compared the annual number of cases of CJD in France, Germany, Italy, Netherlands and the United Kingdom. This comparison showed that rates were similar in all these countries (approximately 1 per million), as was the age distribution and duration of illness prior to death. Cases reported from the United Kingdom were those which were identified through routine reporting and from an intensified surveillance system for CJD-like illness which had been set up in 1990.

Conclusions of this meeting were that the epidemiological evidence in Europe did not indicate a change in the incidence of CJD that could be attributed to BSE. If the measures taken in the United Kingdom regarding cattle feed and SBOs for human consumption, as well as other precautionary measures at farm, slaughter and meat processing levels were being strictly implemented, the risk of BSE transmission, and therefore of possible transmission of BSE to humans, would be minimised. The meeting recommended that WHO encourage research on BSE and its possible implications for human public health, and that WHO continue to provide guidance to countries in order to minimize the risk of transmission of BSE as described above, and of transmission of human diseases such as CJD through medical procedures.

During the past ten months, 10 humans in the United Kingdom have been identified with what appears to be a variant of CJD. The onset of the first case appears to have been as early as February 1994, and 8 of the 10 patients have died to date. These ten cases are all under the age of 42 years and some have had behavioural changes at the onset. All 10 cases have had a prolonged course of disease.

Results of patient interviews and medical history, genetic analysis and testing for other possible causes of this disease were reviewed by the United Kingdom Advisory Committee on Spongiform Encephalopathy which concluded that "although there is no direct evidence of a link on current data and in the absence of any credible alternative the most likely explanation at present is that these cases are linked to exposure to BSE before the introduction of the specified bovine offal ban in 1989". On 20 March 1996 the United Kingdom officially reported the cases and conclusions of this Committee in a press conference.

In the light of the new information on the 10 human cases of variant CJD reported by the United Kingdom on 20 March 1996, a WHO meeting of international experts in neurology, transmissible spongiform encephalopathies, epidemiology, veterinary science and public health is being organised at WHO Headquarters in Geneva on 2-3 April 1996 to review the present situation and to make further technical and public health recommendations as required. In particular, the meeting will identify those technical and scientific issues which must be addressed in developing best practices that will protect the consumer. WHO recommends that if similar disease is identified in any other countries, the national health authorities should be immediately notified. An updated fact sheet will be provided at the conclusion of the 2-3 April meeting.

Australia responds to BSE

The issue of a possible theat to public health in Australia from the importation or consumption of canned meat or other processed beef products originating in the United Kingdom is being reviewed as a matter of urgency by a high level task force established by the Federal Minister for Primary Industries and Energy, John Anderson, and the Federal Minister for Health and Family Services, Dr Michael Wooldridge.

The task force comprises the Chief Medical Advisor of the Department of Health and Family Services, the Chief Veterinary Officer from the Department of Primary Industries and Energy, and officials from the Australian Quarantine and Inspection Service and the National Food Authority.

The Federal Government has announced it will stop the importation to Australia of a small range of food products from Britain which may contain components of processed British beef and that existing stock is being from retail outlets.

Fresh and frozen beef has not been imported to Australia from Britain for a number of years nor has there been any importation of live cattle, cattle semen or cattle embryos from the United Kingdom since 1988.

Australia beef is safe to eat and there is no BSE in Australian cattle.

While the link between BSE and Creutzfeldt-Jacob Disease (CJD) has not been clearly established, and the risk of Australians contracting CJD from British beef products is almost negligible, precautionary measures are being implemented.

The Government decision was taken after considering updated advice from the BSE expert task force and consultations with key food manufacturing and retail industry groups.

A toll free telephone line is available so that members of the public can enquire about products which may be suspect and about the diseases BSE and CJD. The toll free number is 1800 02 06 13 and is open from 8.30am to 8.30pm every day.

MENINGITIS IN AFRICA - THE CONSTANT CHALLENGE OF EPIDEMICS

Based on a World Health Organization press release of 15 March 1996

The epidemics of meningococcal meningitis currently affecting several countries in Africa are not a new phenomenon, although the scale of the current outbreaks is worrying. Outbreaks and epidemics occur periodically throughout the world. In many countries of America, Asia and Europe, where the disease occurs sporadically, its frequency can increase suddenly and take the form of recurrent epidemics.

In sub-Saharan Africa since the 1980s, epidemics have become a constant concern for a considerable number of countries. The World Health Organization (WHO) estimates that epidemics of cerebrospinal meningitis are currently a public health hazard in the twenty following Member States: Benin, Burkina Faso, Burundi, Cameroon, Central African Republic, Chad, Côte d'Ivoire, Ethiopia, Eritrea, Ghana, Mali, Mauritania, Niger, Nigeria, Rwanda, Senegal, Somalia, Sudan, Togo and United Republic of Tanzania. This means that there is a population of approximately 357 million Africans at risk.

The WHO Regional Office for Africa has just taken stock of the epidemiological situation in 18 high risk countries in the Region. As at 13 March 1996, using data available for 12 of those countries, the number of reported cases since January 1996 is 37,144, and the number of deaths is 5,348. The most affected countries at present are Nigeria (22,545 cases and 3,889 deaths), Burkina Faso (8,252 cases and 722 deaths), Niger (4,808 cases and 503 deaths), Mali (787 cases and 158 deaths), Benin (251 cases and 34 deaths), Chad (244 cases and 19 deaths) and the Central African Republic (152 cases and 22 deaths). In other countries, although no epidemic has been reported so far, the risk is real. The case fatality rate ranges from 7.8% to 20.1%, depending on the country.

The situation in Burkina Faso is particularly worrying, especially in five of the twenty-five affected provinces (out of a total of 30 provinces): those of Bam, Yatenga, San Matenga, Ouahigouya and Boulkiemde. In the capital, Ouagadougou, the hospital admits 100 new cases each day.

The WHO Regional Office for the Eastern Mediterranean, which is responsible for a number of countries on the African continent, has received reports of the first cases of meningitis in Sudan (28). The health authorities in that country are on the alert, as those cases have appeared earlier in the year than might have been expected.

Laboratory tests conducted in Norway on samples from Nigeria confirm that the current meningitis epidemic is serogroup A, as is usually the case in Africa.

Action in the field, coordinated by WHO in collaboration with UNICEF, Médecins Sans Frontières and other organisations, must be aimed at bringing the situation in a country under control as quickly as possible. This can be achieved through rapid diagnosis and early treatment of cases, vaccination of the populations at risk, and by preventing propagation of the infection to neighbouring countries.

Prevention and control of epidemics of cerebrospinal meningitis are a major priority in the control of epidemic diseases. At times countries have to cope with several different types of epidemic at once. This is true at present in Nigeria which, in addition to meningitis, has a cholera epidemic in seven states, with 6,117 cumulated cases and 487 deaths since the beginning of the year. Nigeria also has epidemics of measles in eight states, with 3,462 cumulated cases and 302 deaths.

Tools and strategies exist that can reduce the devastating effects of meningitis epidemics. The best method of prevention is vaccination. There are also simple ways of treating patients, the main one being intramuscular oily chloramphenicol. Technical instructions for field staff have been developed.

Where, then, is the problem? There are three major challenges to national health services. The first is early detection of an epidemic. The second is prompt and proper treatment of cases of meningitis, to reduce the number of deaths to a minimum and limit transmission. Finally, mass vaccination of population groups at greatest risk in any zone where an epidemic is recognized will limit the number of cases.

Effective and rapid prevention and control of epidemics of cerebrospinal meningitis call for a high degree of preparedness on the part of health services, and maintenance of operational capacity to act. This means having the human resources, logistics and pharmaceutical supplies, such as vaccines and antibiotics, ready to go into action.

Sufficient stocks of serogroup A+C meningococcal vaccine must be available at all times, as well as intramuscular oily chloramphenicol. The ability of health teams to treat patients and to conduct mass vaccination campaigns at short notice must be improved.

WHO will organise wide-ranging consultations with the countries concerned and with national and international partners in order to set up a strategy and plan of action aimed at better forecasting and preparedness, at both national and intercountry levels. A broad alliance within the international community will be needed to strengthen existing mechanisms and resources so that the challenge of meningitis epidemics in sub-Saharan Africa can be met.

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