

Bovine Spongiform Encephalopathy and vCJD

Traveler Summary

Key Points

- | Bovine spongiform encephalopathy (BSE; “mad cow disease”) is a fatal disease of the brain and nervous system in cattle.
- | The agent that causes BSE can infect humans who have eaten contaminated beef or were transfused with contaminated blood from another infected person, causing variant Creutzfeldt-Jakob disease (vCJD).
- | vCJD risk is negligible to the point where it does not need to be considered by travelers.
- | Symptoms in humans involve progressive neurologic deterioration, including a slow onset of personality changes or psychiatric symptoms, followed by impaired balance or coordination and sudden, involuntary muscle jerks or spasms.
- | Symptoms are always followed by death.
- | In countries where BSE is known to exist, travelers who wish to eliminate any risk of acquiring vCJD from food should avoid eating all beef and beef products; however, this approach is not currently recommended for any destination.

Introduction

Bovine spongiform encephalopathy (BSE), also known as “mad cow disease,” is a fatal disease of the brain and nervous system in cattle. The agent that causes BSE can infect humans, causing variant Creutzfeldt-Jakob disease (vCJD), which is a disorder that involves progressive deterioration of the nerve cells in the brain.

BSE first appeared in cattle in the U.K. in 1986. The disease originated when the causative agent of scrapie (a disease of sheep and goats) entered cattle feed. Cattle ate the infected feed and later were slaughtered for food. The infected byproducts of the slaughtered animals were again made into feed, which resulted in more cases of BSE in cattle. Stricter regulations eventually brought the BSE epidemic under control in the U.K. Very few BSE cases have occurred in animals born in the U.K. since the introduction of the ban on meat-and-bone meal in 1988, and only isolated cases have occurred in animals born since 2000. At the same time that BSE started to decline in the U.K., however, it began to appear in other European countries. Stricter regulations were adopted by other European Union countries in 2001.

Risk Areas

As of June 2016, human cases of vCJD had occurred in U.K., France, Spain, Ireland, U.S., Italy, Netherlands, Portugal, Canada, Saudi Arabia, Japan, and Taiwan.

Although countries in the E.U. have banned the implicated feeding practices since 2001 and have regulations that ban the sale of beef older than 3 years, it is not clear whether there is adequately uniform enforcement throughout Europe. Nevertheless, BSE in cattle is currently well-controlled, occurrence is rare worldwide, and surveillance is generally robust.

Transmission

Humans may acquire vCJD from eating beef that has been contaminated with infectious nervous tissue during the slaughtering process.

There has been no demonstrated case of direct human-to-human transmission, but vCJD may be transmitted through blood transfusion and possibly through organ transplantation.

Risk Factors

The current risk of acquiring vCJD from eating beef and beef products—even in countries with controlled BSE in cattle—is negligible to the point where it does not need to be considered by travelers. The risk of acquiring vCJD from blood transfusion has been minimized but not eliminated in the U.K., and organ or body tissue transplantation could present a risk.

Symptoms

Symptoms of vCJD involve progressive neurologic deterioration, including a slow onset of personality changes or psychiatric

symptoms, followed by impaired balance or coordination and sudden, involuntary muscle jerks or spasms.

Consequences of Infection

Symptoms are always followed by death.

Need for Medical Assistance

Travelers who have visited countries with known cases of BSE should seek medical assistance if signs of personality changes appear along with other vCJD symptoms.

Prevention

Consumption of beef and dairy products: In countries where BSE is known to exist, travelers who wish to eliminate any risk of acquiring vCJD from food should avoid eating all beef and beef products; however, this approach is not currently recommended for any destination due to the lack of measurable risk to travelers. Milk and milk products do not pose a risk for vCJD.

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