It is extremely rare, but possible for humans to contract variant Creutzfeldt-Jakob Disease (vCJD) by eating some food products derived from cows that were infected with classical Bovine Spongiform Encephalopathy (cBSE). However, a new form of prion disease in cattle, called BASE, could pose a greater risk to humans. As the susceptibility of humans to BASE is still unknown, very careful consideration must be given when deciding how to relax control measures for protecting the public, argues a recent study.

vCJD is a very rare but fatal degenerative disease of the brain in humans, for which there is currently no cure. Classical Bovine Spongiform Encephalopathy (cBSE), the first ‘prion’ disease identified in cattle, was first reported in 1986 in the UK. Food-borne transmission of cBSE to humans was observed ten years later as a variant form of Creutzfeldt-Jakob Disease (vCJD), leading to a major public health crisis. However, this strain of cBSE is now rapidly disappearing thanks to appropriate containment measures, such as culling infected cattle.

Regular testing of cattle for cBSE throughout Europe and North America has led to the discovery of new forms of the disease, including bovine amyloidoic spongiform encephalopathy (BASE). Ageing cattle infected with BASE remain free of symptoms, so it can be more difficult to detect.

Questions about human susceptibility to these new strains have been raised. Researchers in France infected primates with BASE, cBSE and vCJD to gain an insight into their impact on humans. Primates are closely related to humans and are susceptible to cBSE.

Whilst vCJD- and cBSE-infected primates survived an average of 31 and 40 months respectively, a BASE-infected primate survived for only 21 months before showing disease symptoms. The BASE-infected primate also displayed different symptoms to the vCJD and cBSE-infected primates. It did not recognise its environment, occasionally stopped eating and lost co-ordination. However, it maintained its general fitness and appetite. cBSE- and vCJD-infected primates became aggressive in the latter months of survival. They experienced tremors and the loss of both appetite and coordination.

Previous studies have suggested a link between BASE and a subtype of CJD (sporadic Creutzfeldt-Jakob Disease,), but this remains unconfirmed. The shorter survival time observed following BASE infection may indicate that it is more capable of causing disease. It might also suggest that BASE is more readily transmissible from cattle to humans.

The researchers therefore argue that current measures to protect public health from accidental contamination by BSE-contaminated products should not be relaxed without caution. Most critically, until the risks of these new forms of the disease are assessed, central nervous system tissues of cattle should not be consumed by humans or fed to other animals. In addition, this tissue should be destroyed to prevent environmental contamination and spread of the disease.


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