

Creutzfeldt-Jakob disease (CJD) and Haemophilia

What is CJD?

Creutzfeldt-Jakob disease is a rare progressive neurological disease caused by abnormal prions. Prions are normal proteins found in all our bodies. They can cause disease when they become misfolded.

Are there different types of CJD?

There are a number of different types of CJD but the two main types are sporadic CJD and variant CJD.

What is sporadic CJD (sCJD)?

Sporadic CJD is a serious progressive neurological disease that appears to occur at random when the normal prion protein in the brain undergoes a spontaneous change to the abnormal form. This results in disease with no association between the reported cases. It mainly affects people of middle age and older. The disease was first reported in 1920 and in recent years around 100 persons per year are found to have the disease in the UK.

What is variant CJD (vCJD)?

Variant CJD is believed to be the human equivalent of the bovine spongiform encephalopathy/BSE (mad cow disease) that rose to prominence in the UK during the period 1985-2000. Both BSE and vCJD are diseases primarily found in the UK. Humans with vCJD develop a neurological disease similar but not identical to sCJD.

Most vCJD infections are believed to relate to eating contaminated beef. Some of those who developed the disease donated blood before they became ill, and three individuals who received this blood later developed vCJD. Treatment with blood or blood products is assumed to be an additional risk of vCJD on top of the possible risk that most people have from eating BSE infected beef in the 1980s/90s. The level of additional risk is not known but assumed to be low. Individuals identified as being in this at risk group were provided with information in 2004.

How many patients with haemophilia have developed variant CJD?

No patient with haemophilia has ever developed symptoms of vCJD. As part of a study to understand the risks of developing vCJD better, tissues from individuals who have died of unrelated causes and who received blood/blood products, have been examined to understand whether there is evidence of clinical or sub-clinical infection. This included a number of haemophilia patients.

In 2008, a 73 year old man with severe haemophilia A and no neurological symptoms died two days after a fall. At autopsy, he was found to have abnormal prions (the causative agent of vCJD) in his spleen but in no other tissues examined. No other cases such as this have been identified since in haemophilia patients.

Recently a large study of 32,441 persons in the UK who had appendicectomies showed that asymptomatic abnormal prions in the appendix tissue were found in 1 in 2,000. Appendix and spleen tissue is considered to be very similar because it is lymphoid in both. The number who have developed clinical symptoms since 1996 is 178, with new diagnoses now occurring at very low levels. The attached table shows the number of cases of vCJD in the UK since 1990. As it can be seen, the number of new cases has been markedly falling since the year 2000 and since 1st January 2012 there have only been 2 cases.

How many patients with haemophilia have developed sporadic CJD?

Two female patients with inherited bleeding disorders have recently been reported to have died from sCJD in 2014; one was a haemophilia carrier and the other had severe von Willebrand disease. Both had been treated with blood products in the past, but there was no link between the products these two individuals received. The UK national CJD unit in Edinburgh examines all cases of CJD in detail and they have concluded after extensive investigation that these two patients had sporadic rather than variant CJD.

Although 1825 persons in the UK are known to have died from sCJD since 1990, it remains a rare disease. The occurrence of two cases in recipients of blood products appears unusual. However, this is the first time that sporadic CJD has been reported in patients treated with clotting factor concentrate anywhere in the world, despite surveillance systems for sCJD existing for a number of years. At this stage, it is not known whether these two cases are a coincidence or whether the disease could be related to their treatment with clotting factor. There is active surveillance both in the UK and Internationally for both sporadic and variant CJD.

Both cases of sCJD in patients who received blood products occurred in 2014 with no other cases reported since.

Deaths from definite or probable CJD in the UK by calendar year

Year	Sporadic CJD	Variant CJD
1990	28	0
1991	31	0
1992	45	0
1993	36	0
1994	53	0
1995	35	3
1996	40	10
1997	59	10
1998	64	18
1999	62	15
2000	48	28
2001	58	20
2002	73	17
2003	79	18
2004	50	9
2005	67	5
2006	68	5
2007	64	5
2008	84	2
2009	78	3
2010	84	3
2011	91	5
2012	93	0
2013	106	1
2014	99	0
2015	104	0
2016	111	1
2017 (as of 2 May)	34	0
Total	1844	178