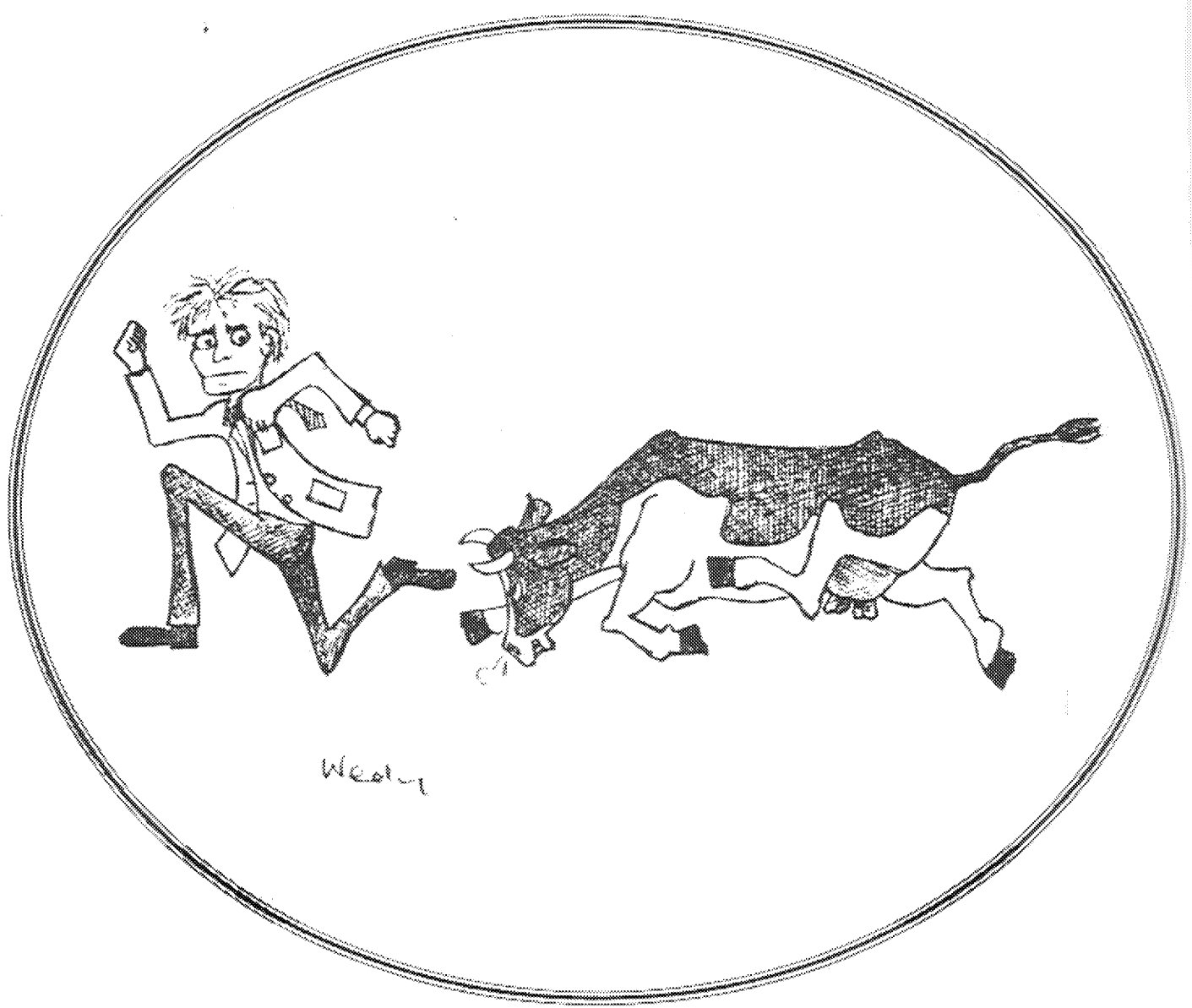


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CAN BLOOD TRANSMIT PRION DISEASE?

(or, will the BTS give us BSE?)

The recent scare about Bovine Spongiform Encephalopathy (BSE) has settled down a little. The subterranean rumblings about the beef cattle cull seem more to do with politics than science or fact. But what about our blood supply? If the pessimists are to be believed there may be many millions of human "BSE" sufferers in the next decade or two. These same people are currently donating blood. What is the risk that it will be infective?

It is clear that we still do not know whether BSE can be transmitted to humans at all and actually have no idea of relative infectivity even if we can catch it. Adding further variables to the equation in the form of theoretical infectivity of human blood increases the uncertainty. Nevertheless, a recent article in the journal "Transfusion Medicine" (1996, 6: 217-222) by Dr. S. Dealler from York attempts to assess the risks and the results are perhaps reassuring. He suggests that, given varying levels for an infective dose of BSE in dietary beef tissue and varying risk of cross-species infectivity, it is possible to calculate the percentage of U.K. subjects in the blood donor age group who will have had an "infective" dose of BSE. The answer is from 0 to 97.5%!

He then looks at the risk that infected blood donors would pass on the infection through their donation. He notes that 50% of blood is given to patients who are dead within a year and that most of the rest is given to patients more than 60 years old. Assuming that the incubation of BSE "acquired by blood" is 20 years relatively few recipients would live long enough to be infected. Even if it is assumed that every unit of blood is infective it is possible to show that only 0.2% of cases of BSE at most would result from blood transfusion. All the others would be from dietary transmission. This is reassuring to you and me who, if beef is infective, will almost

certainly have had our infective dose some years ago.

The position for a child who may have avoided dietary transmission by virtue of age is less certain. Few children are transfused but they are the most likely recipients to live long enough to get the disease. It then becomes important to assess the true infective risk of blood. Dr Dealler notes that the infective agent has been found in the blood of infected animals of some species, though not in others. Attempts to transmit the disease in animals by blood transfusion have so far failed and previous history of blood transfusion in current Creutzfeld-Jakob disease (CJD) sufferers is not more common than in matched controls. More convincingly, none out of 27 recipients of blood traced to a donor who had subsequently died of CJD contracted the disease, though 18 of these were dead from other reasons. Follow up was of an appropriate length.

We may conclude that the risk of transmission of BSE via blood to humans is negligible compared to the dietary risk, however big or small that is. For younger patients who may have avoided the possible dietary risk we must be more cautious but can say that at present the evidence, both animal and historical, is against significant risk of transmission.

It behoves us to use blood wisely and sparingly and if we do that any risk will be outweighed by the benefit.

*Dr. Jonathan Wallis
Consultant Haematologist*