

Why do we need post-mortem research and an ME/CFS tissue bank?

Members of The ME Association will be well aware that our main focus for research at the moment is raising money to enable the Ramsay Research Fund to set up a UK-based tissue bank. Many members have already sent in money by supporting Ed Stafford's heroic walk along the entire length of the River Amazon. But we still have a long way to go – as does Ed!

The aim is to set up a tissue bank that will be able to collect and store suitable samples of tissue that have been obtained from people who have a reliable diagnosis of ME/CFS. Samples can then be made available to researchers anywhere in the world who want to carry out tissue-based research studies.

The most important tissues we want to collect are from the brain and spinal cord – hence the obvious need for post-mortem samples. But with ME/CFS affecting a number of other body systems, this collection process will also need to be widened to include samples from skeletal muscle, gut, liver and hormone-producing glands – tissues that in some circumstances can be obtained from people with ME/CFS who are having a surgical operation, or a biopsy, for some other reason.

Clearly, if we have a better understanding about abnormalities in ME/CFS at a tissue and cellular level, this may well lead to effective forms of treatment aimed at the underlying cause of the disease.

WHAT DO WE KNOW FROM POST-MORTEM RESEARCH SO FAR?

Only a very small number of studies involving post-mortem tissues have been carried out on people with ME/CFS so far. As well as examination under the microscope, tissues can be examined in other ways such as looking for the presence or absence of key chemicals and using what are called immunoassays to look for abnormal proteins.

Despite the very limited number of post-mortem

Dr Charles Shepherd summarises the various initiatives that are taking place to set up an ME/CFS tissue bank

studies carried out so far, some interesting abnormalities have been identified. The first results from a UK post-mortem to be published found evidence of enteroviral RNA (ie viral genetic material) in the muscle, heart, brain stem and hypothalamus of someone with ME/CFS (reference: McGarry F et al. Enterovirus in Chronic Fatigue Syndrome. *Annals of Internal Medicine*, 1994, 120, 972 – 973). More recently, an abnormality in the spinal cord known as dorsal root ganglionitis has been reported but not yet published. This latter finding is particularly interesting because the same abnormality can also occur in Sjogren's syndrome – an uncommon rheumatological disease that also produces fatigue and neurological symptoms.

So post-mortem tissue examination is one area of ME/CFS research where we have only just started to scratch the surface. And with major neurological illnesses such as multiple sclerosis and Parkinson's disease concluding that post-mortem tissue examination forms an essential part of their research portfolio, we believe the same logic must now apply to ME/CFS.

WHAT HAPPENS NOW?

The problem at present with ME/CFS is that post-mortem research is being carried out in a very erratic and unstructured manner. And it often only proceeds thanks to the goodwill of a small number of doctors who are willing to give up their time to deal with both the complex administration involved in obtaining human tissues after death as well as the pathologi-

cal examination of those tissues. The ME Association assists with the administration, negotiations and transportation of tissues, and is very willing to step in with the funding of any stage in the process.

One of the main problems with the current situation is that tissues have to be collected as soon as possible after death – preferably within 24 hours. This is because vital information in nervous system tissue quickly starts to deteriorate or disappear after that.

Unfortunately, the MEA isn't often informed about a death where permission has been given until much later. Sometimes we are only informed at the point when it's too late to do anything at all.

Another problem is that at the time of dealing with news of a someone's death we often don't have accurate information about the clinical history, or certainty of an ME/CFS diagnosis – information upon which crucial and possibly quite costly decisions are going to be made.

Finally, urgent and sometimes very delicate discussions have to take place very shortly after death involving the next of kin, coroner, and pathologists involved. And in cases of a sudden unexpected death due to an accident or suicide, these negotiations may involve the police as well. Not surprisingly, this is a complex and time-consuming process that may not run to plan.

SO WHAT DO WE WANT TO DO?

Our aim is set up the sort of properly staffed and organised tissue bank that is already operating and being funded by the multiple sclerosis and Parkinson's disease charities at the Hammersmith Hospital in London.

The Medical Research Council also operates a tissue bank in Edinburgh that deals with HIV/AIDs tissues as well as a number of less common neurological diseases.

Such a facility would obviously require 'bricks and mortar' within a hospital or research institution; staff to administer both the database of volunteers and all the stages in the administrative process; and funding for the microscopic examination of the tissues being obtained.

Part of the process will also require the recruitment of healthy volunteers into the database in order to eventually collect post-mortem tissue from people of similar age and the same sex for comparison.

We obviously cannot achieve this aim with immediate effect, mainly because we just do not have the funds.

So the first step is to gather all the information that is needed to take this project forward. One key part of this process is the information that will come from the feasibility study.

TISSUE BANK FEASIBILITY STUDY

An academic tissue bank feasibility study is now underway, the second stage of which has been funded by the MEA and Action for ME. The MEA sits on the Steering Group.

The feasibility study is looking at all the practicalities involved in setting up and maintaining a

tissue bank along with the costs of doing so.

The study will also be examining the ethics of post-mortem research; its acceptability to people with ME/CFS; the setting up of a database of volunteers; and the strict requirements contained in the 2004 Human Tissue Act relating to the removal, collection and storage of human tissues. The feasibility study is talking to both experts and people with ME/CFS and will complete its evidence-gathering in the next few months. A report will then be prepared.

As for acceptability, the MEA has already carried out an online survey on the MEA website in January 2009. Out of 450 people who replied, 72% said yes; 14% said they were unsure and only 14% said no.

When we have the information back from the feasibility study we can then look more closely at the various options for setting up an ME/CFS facility. But the decision on how to proceed will probably be governed by the costs involved.

Setting up a completely separate facility – as currently happens with multiple sclerosis and Parkinson's disease tissue banks – would involve major costs in both setting up and day-to-day running.

A cheaper and probably more realistic option would be to link an ME/CFS tissue bank into one of the existing UK tissue banks. The possibility of Medical Research Council involvement was discussed at the meeting of their Expert Group on ME/CFS Research on 30 March 2009 and Dr Shepherd visited the MRC tissue bank in Edinburgh in the summer of 2009.

We will summarise the findings of the feasibility group in our quarterly *ME Essential* magazine when they become available. This summary will also be made available at our website.

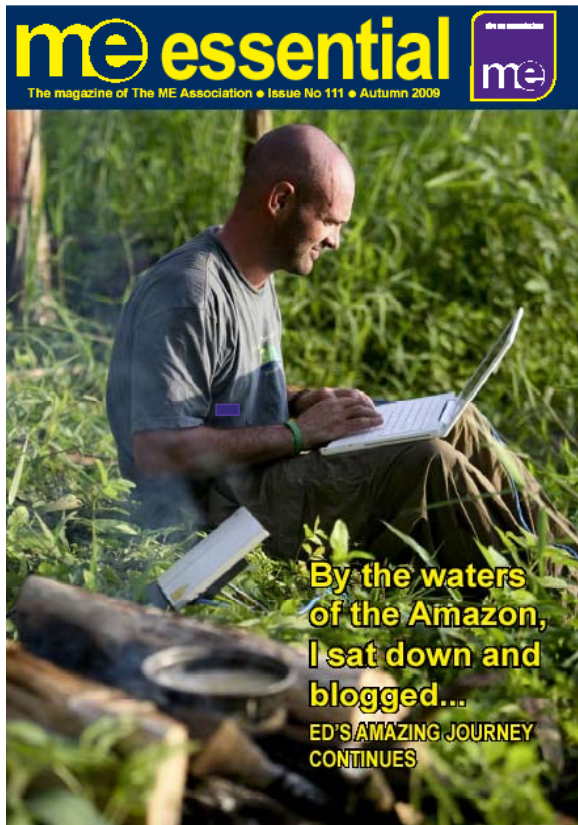
HERE'S HOW YOU CAN HELP

- Send in a donation to the MEA Ramsay Research Fund.
- Donate on line to Ed Stafford's Amazon Walk via: www.walkingtheamazon.com
- If you want to leave your body to ME/CFS research, the best way to do this at present is to make sure that your next-of-kin are well aware of this wish and know that they need to make contact with the MEA as soon as possible after death. The intention should also be expressed clearly in writing in the form of a Letter of Wishes, your Will, or some other signed statement that can be readily accessed by your next-of-kin or your solicitor. Unfortunately, in the current situation with very limited human resources, it is not always possible to arrange for tissues to be examined and used in this way.

THE MEA RAMSAY RESEARCH FUND

The MEA has a new information leaflet that covers the remit of the Ramsay Research Fund (RRF). The leaflet also contains a summary of research studies that have been funded, or are currently being funded by the RRF.

A free copy of this leaflet can be downloaded from the research section at our website: www.meassociation.org.uk



ME Essential is our quarterly magazine.

It's delivered to every member of The ME Association

To inquire about joining, please contact:

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Pictured: Ed Stafford, who is raising money for the MEA Tissue Bank Appeal.