Proposed Research into Post Covid Syndrome and ME/CFS Under the Auspices of The London School of Hygiene and Tropical Medicine.

Long Covid and Myalgic Encephalomyelitis/Chronic Fatigue Syndrome:

Introduction:

"Long Covid" is beginning to look very much like Myalgic Encephalomyelitis/Chronic Fatigue Syndrome (ME/CFS). Dr Anthony Fauci, Director of the United States' National Institute of Allergy and Infectious Disease Institute certainly thinks so, as does Professor Anthony Komaroff of the Harvard University Medical School. Professor Komaroff has much experience in the field of ME/CFS and has published widely on the subject. The symptoms described by sufferers are similar to the point of being identical, and the majority of patients with ME/CFS prior to the Covid-19 pandemic also describe an onset triggered by an infection. The only difference is that most people with pre-Covid-19 ME/CFS present in a sporadic, non-epidemic fashion, following an endemic, community acquired infection. They therefore have not presented in such concentrated numbers as is the case with Long Covid.

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The consequence has been less publicity, and crucially, very little understanding within the medical profession of its true nature. As previously stated, pre-Covid-19 ME/CFS is usually triggered by an infection, and a range of very disparate infections have been recognised as triggers. These range from Epstein-Barr virus through to Salmonella infections and giardiasis. Thus ME/CFS can be triggered by a mixed bag of viruses, bacteria, or protozoa, indicating that the initiating impetus for ME/CFS is a non-specific immunological challenge. This principle suggests that Covid-19 can be added to the range of infections that can trigger ME/CFS.

The scientific question which has always been difficult to answer is: what happens during the acute phase of a triggering infection which then leads to the development of ME/CFS? Also, how do those who don't progress to ME/CFS and recover, differ from the unfortunates who do? One of the recognised immunological abnormalities in ME/CFS is inappropriate and ongoing immunological activity. This is at variance with the normal, healthy immune response to an acute infection. In the latter case, the immune system responds to the presence of an infecting organism, acts appropriately to clear it and then shuts down afterwards with resolution of the symptoms of the infection. In ME/CFS this does not happen, and immunological activity continues inappropriately

despite the fact that the triggering organism is no longer present. The simplest analogy is that of an old fashioned gramophone needle getting stuck and replaying repeatedly in the same groove. Therefore: what causes the needle to get stuck?

Outline of Proposal:

The Covid-19 pandemic now presents the opportunity to look at blood samples from people with Long Covid, preferably taken as early as possible in their illness. The intention will be to look for any factors which may have contributed to its development. Ideas for this range from low Vitamin D levels, to concurrent but "silent" virus infections, which are quite common. A longer shot will take in the possibility of what are known as endogenous retroviruses being released from the patient's genome by the metabolic stress of the triggering infection. It is proposed that these may then reinsert at a different part of the genome, with pathological results.

The study will be carried out through the ME Biobank at the London School of Hygiene and Tropical Medicine. Blood samples will be required from patients with Long Covid, preferably as early as possible, and not more than 4 months after the onset of the infection. Samples already taken and stored during the acute stage of the infection (usually in hospitalised cases) will be invaluable. Initially the blood samples would have to be taken from patients ambulant enough to get to central London. Nonetheless dependant on funding of the study, a more comprehensive operation may allow for housebound post Covid patients being visited at home for their blood to be taken. An additional and important component of the study would comprise blood from a friend or relative who also experienced Covid-19 infection but who made a complete recovery. The intention being that their blood would act as a "control", providing comparison with blood from someone with Long Covid.

It should be emphasised that this study is at the very earliest stages of preparation. In particular much will depend upon the amount of funding which can be raised. We are especially seeking independent funding from the ME community; this may make the difference between a useful but small pilot, to something larger and more ground-breaking. For those with Long Covid who are interested in being involved in this study the following link provides information on registration:

https://cureme.lshtm.ac.uk/participants/

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