Are Arteries of ME Patients Stiffer Than Normal?

A Report From ME Research UK

Over the past 3 years, the team at the Vascular Diseases Research Unit, University of Dundee has uncovered a range of potentially important findings in people with ME. These include increased levels of oxidative stress (which might be responsible for some of the symptoms, such as pain, seen after exercise in patients) and abnormalities in a type of white blood cell (called neutrophil) - specifically a larger proportion of dying (apoptotic) cells than in healthy people, which might be a consequence of a past or present infection. The most recent finding (to be reported by Dr Faisel Khan in a scientific paper shortly) is that the arteries of adults with the illness seem to be stiffer than in healthy age-matched people.

Increased Inflammation

Dr Khan and his team had read a previous scientific report from 2005 which had found increased arterial stiffness and lower blood pressure in a group of 32 adolescents with ME, which could not be explained by changes in arterial wall characteristics or lifestyle changes. So, they decided to look at adult patients in the NE of Scotland to see if they showed the same problem. In total, forty-one patients on the ME/CFS database and 35 healthy volunteers were examined. Arterial stiffness was measured by the SphygmoCor pulse waveform analysis system, and peripheral pressure waveforms were recorded at the radial artery of the arm by tonometry. At least 15 high quality pressure waveform recordings were obtained from which the central aortic pressure waveform was calculated.

The patients had significantly increased levels of C-reactive protein (a marker of inflammation) and the pulse wave analysis revealed a significantly greater degree of arterial stiffness in the patients than the controls after all other variables were taken into account. Furthermore, C-reactive protein was the strongest predictor of arterial stiffness, indicating a relationship between inflammation and stiffness, and suggesting (but not proving) that patients might be at an increased risk of a future cardiovascular event.

Biological Abnormalities Can Be Found

As Dr Vance Spence of ME Research UK said, “Though the researchers have shown an association between increased arterial stiffness and low grade inflammation, what this really means in practice is still unknown, and stiffness is still far from being a diagnostic marker for ME. What is clear, however, is that if scientific effort and funding are directed towards a problem, researchers can uncover, within a proportion of patients, biological anomalies that might well help to explain many of the clinical features of ME”.