

Lupus can affect attention and concentration



Inflammatory mechanisms and organ damage impact cognitive functioning in people with Lupus.

INTRODUCTION

Systemic lupus erythematosus (often called Lupus or SLE) is an autoimmune disease. It typically starts in women between the ages of 15 and 45. Lupus causes immune cells in the body to become hyperactive and produce autoantibodies. An antibody is a protein that the immune system makes to attack foreign substances in the body, such as viruses or bacteria. In autoimmune disease, the body makes antibodies that attack its own tissues. These are called autoantibodies.

Lupus symptoms can vary from patient to patient. People with Lupus are often very tired (a symptom also called “fatigue”), have joint pain, and their skin may be sensitive to sunlight. Lupus can also cause cognitive problems with a person’s memory, concentration, attention and planning. People with the disease often refer to this as ‘brain fog’.

WHAT DID THE AUTHORS HOPE TO FIND?

The authors wanted to find out more about cognitive problems in people with Lupus.

WHO WAS STUDIED?

The study looked at 36 people with stable Lupus, and compared them to 30 healthy volunteers.

HOW WAS THE STUDY CONDUCTED?

All the people with Lupus were being treated in Manchester in the UK. The healthy volunteers were from the general population in the same area. Everyone had a one-off visit to the clinic, which lasted 4 hours. During this time, people in both groups told the researchers about their medical history, had blood samples taken, and completed questionnaires about their mood, fatigue, pain and sleep. They also did some puzzle games on a computer that tested their cognitive function. Finally, everyone had a special type of brain MRI scan (called a functional MRI, or fMRI), which allowed doctors to look at how areas of the brain responded when people were completing tasks to test their memory, attention and emotional processing.

WHAT WERE THE MAIN FINDINGS OF THE REVIEW?

Overall, the people with Lupus performed similarly to the healthy volunteers on all tasks except attention. However, the fMRI results showed that the people with Lupus had different brain responses while they were doing the tasks. This suggests that people with Lupus use different brain mechanisms to compensate for their disease. This allows them to maintain the same level of function as someone without the disease. This also means their brain has to work a bit harder to maintain normal cognitive function.

The authors also found subtle differences in the brain structure as well as differences in levels of mood, fatigue, and markers of inflammation between the people with Lupus and the healthy volunteers. These factors may all have an effect on cognitive function in Lupus.

ARE THESE FINDINGS NEW?

Yes and no! The use of this special kind of MRI in people with Lupus is relatively new, but there have already been some studies done with it that have suggested that people with Lupus use compensatory brain mechanisms to maintain cognitive function. So this part of the study supports previous findings.

However, this study is different from previous studies because it is bigger, and it looked at how someone performs on a cognitive task, what is happening in their brain whilst they are doing the task and if there are any structural issues in the brain. This study also excluded people with a form of Lupus called neuropsychiatric Lupus, where there is direct brain involvement. This is because the authors wanted to look at the milder cognitive problems reported by people with Lupus such as ‘brain fog’. Another new finding of this study is that

Lupus-specific factors (such as inflammation and Lupus organ damage or disease duration) are associated with cognitive dysfunction as well as chronic disease factors such as fatigue, depression, pain, and medication. We know that people with chronic diseases are more likely to have cognitive problems, but these results suggest that it isn't just the chronic disease factors that are affecting cognitive function, but that there is something specific to Lupus that is also having an effect.

WHAT ARE THE LIMITATIONS OF THE STUDY?

There are a few limitations because of the way the study was done. The strict exclusion criteria and the use of fMRI as the study measure meant that there were quite small numbers of people taking part.

There were also some slight differences between the two groups. Overall, the people in the healthy volunteer group had slightly higher IQs than the people with Lupus. IQ measures intelligence, which can affect cognitive function, but this difference does not seem to have affected the study. Certain medicines can also affect cognitive function, and some people in the Lupus group were taking medicine for their disease, but again the authors do not think this has affected the results.

WHAT DO THE AUTHORS PLAN ON DOING WITH THIS INFORMATION?

The authors hope to run another trial looking at treatments to try and improve cognitive function in people with Lupus. They are working on pilot studies to help get the design right. They will also share these results with other teams working in Lupus, as it may be important to consider these findings in other trials testing new medicines.

WHAT DOES THIS MEAN FOR ME?

If you have Lupus, this study should help raise awareness about the impact that the disease can have on your brain. You might find that although you can do the same tasks as your colleagues or friends, your brain gets tired more quickly. If you experience 'brain fog' it is worth bringing it up with your doctor, as it might be an important factor in deciding which treatment is best for you.

There are clinical trials going on in Lupus. If you are interested in being involved, you should speak to your doctor.

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