

Infections May Hasten Memory Loss In Alzheimer's

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New research sponsored by the UK's Alzheimer's Society suggests that having an infection like a cold or stomach bug may hasten memory loss in people with Alzheimer's disease.

The research was the work of Dr Clive Holmes of the University of Southampton in the UK, and colleagues, and is to appear as a paper this week in an advanced online September 2009 issue of the journal *Neurology*.

Commenting on the research, the Alzheimer's Society said:

"People with Alzheimer's disease who develop an infection need to be treated as soon as possible to prevent it worsening their dementia."

Holmes and colleagues were investigating how inflammatory proteins released during common infections might affect the brain.

One such inflammatory protein is tumor necrosis factor-alpha, and they found that people with common infections such as a cold, stomach bug, urine infection, or even bumps and bruises from a fall, had higher levels of this inflammatory protein in their blood, and were also more likely to experience memory loss and other types of cognitive decline than counterparts who did not have infections and who had low levels of the inflammatory protein.

At the start of the study, Holmes and colleagues examined blood samples and cognitive abilities of 222 people with Alzheimer's disease and whose average age was 83. The examination was repeated three more times over the next six months and the researchers also interviewed caregivers to find out about infection rates and accidental injuries that could lead to inflammation.

The results showed that:

- 110 of the participants experienced an infection or inflammation-causing injury over the six months of the study.
- These 110 participants had twice the rate of cognitive decline of people who did not have any infections or injuries during the period of the study.
- Participants who already had high levels of inflammatory protein in their blood at the start of the study (an indicator of chronic inflammation), showed four times the rate of cognitive decline of those whose levels were low at the start of the study.
- And those who had high levels of the protein at the start of the study, and who also had acute infections during the course of the six months, experienced 10 times the rate of cognitive decline of those who started the study with low levels of inflammatory protein and had no infections during the six months of the study.

Head of Research, Alzheimer's Society, Dr Susanne Sorensen, told the media that while we know there might be a link between inflammatory processes and Alzheimer's we don't really know much about it. So:

"This study is an important step towards understanding the processes that occur during the onset of Alzheimer's disease."

"More research is now needed to further this line of investigation," she added.

In the meantime older people, people with dementia, and their carers should treat all infections seriously and make sure they see their doctor. Health professionals treating Alzheimer's patients should also be extra vigilant about infections and make sure they are dealt with promptly and effectively, said the Alzheimer's Society in a press statement.

Commenting on how strongly the evidence suggests that it is inflammation that causes cognitive decline and not the other way around (given that the study could only examine correlations and thus

only show the strength of the link, not the direction of cause) Holmes accepted that one way of looking at the results would be to suggest people who had a rapid rate of cognitive decline were more likely to have infections or injuries, but if he had to guess he would say it was not that way around, because:

"We found no evidence to suggest that people with more severe dementia were more likely to have infections or injuries at the beginning of the study."

"More research needs to be done to understand the role of tumour necrosis factor-alpha, but it's possible that finding a way to reduce these levels could be beneficial for people with Alzheimer's disease," said Holmes.

"Systemic inflammation and disease progression in Alzheimer disease ."

C. Holmes, C. Cunningham, E. Zotova, J. Woolford, C. Dean, S. Kerr, D. Culliford, and V.H. Perry.
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