

Anti-inflammatory drugs and Alzheimer's disease

- current research

Introduction

This information sheet describes current research into whether a group of drugs called non-steroidal anti-inflammatory drugs (NSAIDs), such as ibuprofen, can protect against or at least delay the onset of Alzheimer's disease.

Recent Dutch research

A Dutch research study¹, published in November 2001 in the New England Journal of Medicine, suggests that NSAIDs may protect against or at least delay the onset of Alzheimer's disease. The study followed almost 7,000 people over 55 for about 7 years. During this time, 293 developed Alzheimer's disease, but those who had used NSAIDs (for example for joint problems) were up to 80% less likely to develop it than those who had not. The effect depended on how long they had used NSAIDs rather than on the dose.

While this is encouraging news, it is important to realise that it is not in itself conclusive, and more work needs to be done, such as controlled trials to discover, for example:

- if it is in fact the drugs which are having the effect or some other factor
- which drugs might be most effective with fewest side effects.

Serious side effects

It is very important that people do not start taking these drugs without medical advice, as they can have serious and even potentially fatal side-effects such as stomach bleeding and kidney damage. There is a lot of research going on to find similar drugs with fewer side-

effects, and it is likely that safer drugs will be produced in the not too distant future.

Theories of why NSAIDs may have an effect

There has been growing evidence over several years and a number of studies that seem to show that NSAIDs might have some protective effect in Alzheimer's disease. Connected with that is a theory, with a good pathological basis, that there is an inflammatory-type response in the brain to the cell damage and death that is caused by Alzheimer's disease. This inflammation may be of importance, and might even contribute to the damage to brain cells.

The authors of the Dutch study suggest that NSAIDs do more than just dampen down that inflammatory response - that they might even interfere with the process of cell damage through amyloid. But that is just a theory, with a little bit of experimental backing.

How meaningful is the Dutch study?

The study is impressive, because it looked at a large number of people over a considerable period of time, and with very good information on what drugs each person had been taking and for how long. This type of study has both advantages and disadvantages. The advantages are that it is 'naturalistic', looking at a real population rather than at a very carefully selected group. However, the disadvantage is that it is not a planned controlled double-blind trial of the drugs.



The fact that only the incidence of Alzheimer's disease appears to be affected by the NSAIDs, whilst vascular dementia is not affected, is impressive because it seems to show a very specific effect of these drugs.

The effect of the drugs on reducing the risk of Alzheimer's disease seems quite large. The study showed that people who had taken the drugs for less than a month had 5% less likelihood of developing the illness, while those who had taken them for between 1 and 24 months were 17% less likely and those using them for over 2 years were 80% less likely to develop Alzheimer's disease. This most likely means that the onset of the disease in people who might otherwise have developed it was delayed, but this is not clear. If the drugs are delaying the onset, it remains to be seen how long they could delay it for. However, because the risk of Alzheimer's disease increases with age, even a delay of a few years could reduce the number of people

developing Alzheimer's disease very significantly.

The future

It may be that the eventual treatment for Alzheimer's disease will be a mixture of treatments. It is possible that NSAIDS may be a part of this approach in the future.

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ⁱ in 't Veld BA et al, (2001) Nonsteroidal Antiinflammatory Drugs and the Risk of Alzheimer's Disease. *New England Journal of Medicine*, vol 345:1515-1521

An abstract of the article can be found at <http://content.nejm.org/cgi/content/abstract/345/21/1515>.

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