Statins and Alzheimer’s disease

*This fact sheet is prepared by the Alzheimer’s Association for your information only and does not represent an endorsement of statins.*

What are statins?

Statins are a group of drugs widely prescribed to reduce cholesterol. They lower levels of low-density lipoprotein (LDL) cholesterol — the type most strongly linked with coronary artery disease and stroke — by blocking a liver enzyme essential for cholesterol production. Statins are formally known as 3-hydroxy-3-methylglutaryl coenzyme A (HMG CoA) reductase inhibitors. The U.S. Food and Drug Administration (FDA) approved the first statin in 1987. Statins now marketed in the United States include atorvastatin (Lipitor®), fluvastatin (Lescol®), lovastatin (Mevacor®), pravastatin (Pravachol®), simvastatin (Zocor®) and a number of other formulations.

Why are statins of interest in Alzheimer’s?

Some, but not all, epidemiological studies have found a link between taking statins to reduce cholesterol levels and a decreased risk of developing Alzheimer’s disease later in life. Researchers explored the possibility of such a relationship because other studies suggested that people with cardiovascular risk factors have an increased Alzheimer risk. Laboratory work has shown that in the brain, the cholesterol-carrying protein apolipoprotein E (ApoE) promotes aggregation of the protein fragment beta-amyloid into the amyloid plaques that are a hallmark Alzheimer pathology. Further, individuals who have APOE-e4 — one of the three common variations of the gene that codes production of ApoE — have an increased likelihood of developing the common, late-onset form of Alzheimer’s. These lines of evidence suggest that cholesterol levels and differences in the body’s cholesterol-processing pathways may influence Alzheimer risk.

A small study involving 44 participants with normal cholesterol levels and a diagnosis of Alzheimer’s has found preliminary evidence that simvastatin (Zocor®) may be of some benefit to individuals with Alzheimer’s disease.

Another pilot study enrolling 63 individuals with normal cholesterol levels and mild to moderate Alzheimer’s disease found preliminary evidence for some benefit with atorvastatin (Lipitor®).

Gathering stronger evidence about the effectiveness of statins as a prevention or a treatment will require large-scale clinical trials comparing the occurrence of Alzheimer’s in a group of participants randomly assigned to take statins to its frequency in a group similar in all important respects except not taking statins. The trials will need to include participants with normal cholesterol levels, because the effects of statins in this group have not been adequately studied. Additional work is also needed to determine the molecular mechanisms by which statins may modify pathological processes in Alzheimer’s.

The Alzheimer’s Association and most scientific experts believe that no one should take statins specifically to lower their risk of Alzheimer’s until further research clarifies the possible relationship between statins and dementia. However, most physicians do advocate keeping one’s cholesterol within levels recommended by the National Cholesterol Education Program of the National Heart, Lung, and Blood Institute, a division of the U.S. National Institutes of Health. The latest guidelines are summarized in: “Executive Summary of the Third Report of the National Cholesterol Education Program (NCEP) Expert Panel on Detection, Evaluation, and Treatment of High Blood Cholesterol in Adults (Adult Treatment Panel III),” published in the May 16, 2001 issue of the Journal of the American Medical Association on pages 2486 – 2497. The guidelines are also posted online by the National Heart, Lung, and Blood Institute at: [http://www.nhlbi.nih.gov/guidelines/cholesterol/index.htm](http://www.nhlbi.nih.gov/guidelines/cholesterol/index.htm).

Where can I get more information?

The Alzheimer’s Association will update this fact sheet as scientists learn more about statins and Alzheimer’s disease. For information about clinical trials of statins or answers to...
your other questions about Alzheimer's disease, please call our 24/7 Nationwide Contact Center Helpline at 1.800.272.3900 or visit our Web site at www.alz.org.

You can find the preliminary studies mentioned in this fact sheet in these sources:


Additional information about heart health and managing your cholesterol is available on the Web site of the American Heart Association at www.americanheart.org.

The Alzheimer's Association, the world leader in Alzheimer research, care and support, is dedicated to finding prevention methods, treatments and an eventual cure for Alzheimer's.

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Fact sheet updated  May 10, 2005