

**Editorial**

# **Anemia and Raised Cholesterol Level Increases Alzheimer's Risk**

**Mohsin Masud Jan**

Editor

There are currently an estimated 24 million people in the world with dementia. Two thirds of these live in developing countries. Dementia is a progressive degenerative brain syndrome which affects memory, thinking, behavior and emotions. Alzheimer's disease is the most common cause of dementia.

Declining memory, especially the short-term memory, is the most common early symptom of dementia. Other symptoms include difficulty in performing familiar tasks; disorientation to time and place; poor or decreased judgment; and changes in personality. Dementia is not a normal part of ageing. Age is an important risk factor but not the only one. Dementia affects 5% over the age of 65 and 20 % over the age of 80.

This alarming figure is expected to rise dramatically to 81 million by the year 2040, as the life expectancy increases. In Pakistan alone, one million people are estimated to be suffering from dementia and with the increase in life expectancy; these figures will shoot up as well.

Older adults suffering from anemia — lower than normal red blood cell levels — may be at increased risk for dementia, a new study suggests.

Anemia affects as many as 23 percent of seniors, the researchers say. "We found a 60 percent increased risk of dementia with anemia. After controlling for other factors such as other medical illness, demographics, etcetera, the risk remained elevated 40 to 50 percent," said lead study author Dr. Kristine Yaffe, a professor of psychiatry, neurology and epidemiology at the University of California, San Francisco. "Given how common both anemia and dementia are in older adults, more attention to the connection between the two is important. The study of more than 2,500 men and women in their 70s doesn't actually prove that anemia causes dementia, however.

"Because we studied this prospectively, we do think, as best we can tell, that anemia is casually related to dementia, but with observational studies one can never say for sure. But we did our best to exclude other explanations," Yaffe said. The job of red blood cells is to carry oxygen throughout the body. When you are anemic, less oxygen is delivered to brain cells, Yaffe explained. "We think the association is about low oxygen being carried to the brain," she said. Anemia could also indicate poor overall health, the study authors noted. Causes of anemia include iron deficiency

and blood loss. Cancer, kidney failure and certain chronic diseases can also lead to anemia.

The study — published online July 31 in *Neurology* — should remind doctors that many conditions can lead to dementia, and treating them might ward off mental decline, one expert said. "One concern about the increased visibility and prevalence of Alzheimer's disease is that some physicians will be tempted to jump straight to that diagnosis without first having followed the 'rule out reversible causes' rule," said Dr. Sam Gandy, director of the Mount Sinai Center for Cognitive Health in New York City. Alzheimer's disease is the most common form of dementia. "We must always seek to exclude treatable, reversible causes of dementia such as depression, nutritional deficiencies, endocrine disorders and metabolic disorders before rushing into a diagnosis of Alzheimer's," he said.

During the study, all of the participants were tested for anemia and took memory and thinking tests over 11 years. Almost 400 participants were anemic at the study's start. Over the course of the study, about 18 percent of participants — 455 — developed dementia, the researchers found. Of participants with anemia, 23 percent developed dementia, compared with 17 percent of those who weren't anemic. People who were anemic at the study's start had a 41 percent higher risk of developing dementia than those without anemia after the researchers took into account factors such as age, race, sex and education. Additional research is needed to confirm this association before recommendations are made regarding dementia prevention, the study authors suggested.

A study from the University of California, Davis, found that low levels of "bad" (LDL) cholesterol and high levels of "good" (HDL) cholesterol are linked to lower levels of so-called amyloid plaque in the brain. A build-up of this plaque is an indication of Alzheimer's disease, the researchers said in a university news release.

The researchers suggested that maintaining healthy cholesterol levels is just as important for brain health as controlling blood pressure. "Our study shows that both higher levels of HDL and lower levels of LDL cholesterol in the bloodstream are associated with lower levels of amyloid plaque deposits in the brain," the study's lead author, Bruce Reed, associate director of the UC Davis Alzheimer's Disease Center, said in the news release.

“Unhealthy patterns of cholesterol could be directly causing the higher levels of amyloid known to contribute to Alzheimer’s, in the same way that such patterns promote heart disease,” Reed said. The study, which was published in the Dec. 30 online edition of the journal JAMA Neurology, involved 74 men and women recruited from California stroke clinics, support groups, senior-citizen facilities and the UC Davis Alzheimer’s Disease Center. All of the participants were aged 70 or older. Of this group, three people had mild dementia, 33 had no problems with brain function and 38 had mild impairment of their brain function.

The investigators used brain scans to measure the participants’ amyloid levels. The study revealed that higher fasting levels of LDL cholesterol and lower levels of HDL cholesterol both were associated with more accumulation of amyloid plaque in the brain. Exactly how cholesterol affects amyloid deposits in the brain remains unclear, however, the researchers said.

In the United States, cholesterol is measured in milligrams of cholesterol per deciliter of blood, or mg/dL. HDL cholesterol should be 60 mg/dL or higher, the researchers said in the news release. LDL cholesterol should be 70 mg/dL or lower for those at very high risk for heart disease. Reed and his colleagues said it’s important to maintain healthy cholesterol levels in those who are showing signs of memory problems or dementia, regardless of their heart health.

“This study provides a reason to certainly continue cholesterol treatment in people who are developing memory loss regardless of concerns regarding their cardiovascular health,” said Reed, who also is a professor in the UC Davis department of neurology. “It also suggests a method of lowering amyloid levels in people who are middle-aged, when such build-up is just starting,” Reed said in the news release.