ALZHEIMER'S DISEASE AND THE MODERN ALIMENTATION

Alzheimerul şi alimentaţia modernă

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Abstract
Alzheimer's disease usually begins after age 60. The risk goes up as you get older. Your risk is also higher if a family member has had the disease. No treatment can stop the disease. However, some drugs may help keep symptoms from getting worse for a limited time.

Alzheimer's disease is a devastating form of nonreversible dementia now affecting at least 5 out of 10 persons worldwide. Its course is marked by a gradual loss of memory, ability to communicate, and, eventually, physical capabilities. Appetite and food intake fluctuate with mood swings and increasing confusion. Feeding and alimentation skills regress gradually because of cognitive and physical deterioration; uncontrolled weight loss is almost inevitable in latter stages, despite quality of care. A number of etiological models exist, including some related to vitamin and mineral metabolism, although research has not yet yielded a certain cause or cure. Treatment is symptomatic relief through interdisciplinary health care intervention. Psychological, medical, nutritional, and nursing support are needed by the caregivers as well as by the patients themselves.

Keywords: dementia, memory, nutrition

Introduction

Alzheimer's disease is the most common form of dementia among older people. Dementia is a brain disorder that seriously affects a person's ability to carry out daily activities.

Alzheimer's diseas begins slowly. It first involves the parts of the brain that control thought, memory and language. People with Alzheimer's diseas may have trouble remembering things that happened recently or names of people they know. A related problem, mild cognitive impairment (MCI), causes more memory problems than normal for people of the same age. Many, but not all, people with MCI will develop Alzheimer's deseas.

In Alzheimer's diseas, over time, symptoms get worse. People may not recognize family members. They may have trouble speaking, reading or writing. They may forget how to brush their teeth or comb their hair. Later on, they may become anxious or aggressive, or wander away from home. Eventually, they need total care. This can cause great stress for family members who must care for them.

Alzheimer's disease

More than 5 million Americans have Alzheimer's disease, the most common form of dementia. Alzheimer's accounts for 60 to 80 percent of all dementia cases. That includes 11 percent of those age 65 and older and one-third of those 85 and older. The disease also impacts more than 15 million family members, friends and caregivers.

How Alzheimer's affects the brain

The changes that take place in the brain begin at the microscopic level long before the first signs of memory loss.

The brain has 100 billion nerve cells (neurons). Each nerve cell connects to many others to form communication networks. In addition to nerve cells, the brain includes cells specialized to support and nourish other cells. Groups of nerve cells have special jobs. Some are involved in thinking, learning and memory. Others help us see, hear, smell and tell our muscles when to move. Brain cells operate like tiny factories. They receive supplies, generate energy, construct equipment and get rid of waste. Cells also process and store information and communicate with other cells. Keeping everything running requires coordination as well as large amounts of fuel and oxygen. Scientists believe Alzheimer's disease prevents parts of a cell's factory from running well. They are not sure

where the trouble starts. But just like a real factory, backups and breakdowns in one system cause problems in other areas.

As damage spreads, cells lose their ability to do their jobs and, eventually, die. The role of plaques and tangles The brains of individuals with Alzheimer's have an abundance of plaques and tangles. Plaques are deposits of a protein fragment called beta-amyloid that build up in the spaces between nerve cells. Tangles are twisted fibers of another protein called tau that build up inside cells. Though autopsy studies show that most people develop some plaques and tangles as they age, those with Alzheimer's tend to develop far more and in a predictable pattern, beginning in the areas important for memory before spreading to other regions. Scientists do not know exactly what role plaques and tangles play in Alzheimer's disease. Most experts believe that they disable or block communication among nerve cells and disrupt processes the cells need to survive. The destruction and death of nerve cells causes memory failure, personality changes, problems in carrying out daily activities and other symptoms of Alzheimer's disease.

Causes and risk factors

While scientists know that Alzheimer's disease involves the failure of nerve cells, it's still unknown why this happens. However, they have identified certain risk factors that increase the likelihood of developing Alzheimer's.

Age. The greatest known risk factor for Alzheimer's is increasing age. Most individuals with the disease are 65 and older. One in nine people in this age group and nearly one-third of people age 85 and older have Alzheimer's.

Family history. Another risk factor is family history. Research has shown that those who have a parent, brother or sister with Alzheimer's are more likely to develop the disease than individuals who do not.

The risk increases if more than one family member has the illness. Familial Alzheimer's and genetics Two categories of genes influence whether a person develops a disease: risk genes and deterministic genes. Risk genes increase the likelihood of developing a disease but do not guarantee it will happen. Deterministic genes directly cause a disease, guaranteeing that anyone who inherits one will develop a disorder. Researchers have found several genes that increase the risk of Alzheimer's. APOE-e4 is the first risk gene identified and remains the one with strongest impact. Other common forms of the APOE gene are APOE-e2 and APOE-e3. Everyone inherits a copy of some form of APOE from each parent. Those who inherit one copy of APOE-e4 have an increased risk of developing Alzheimer's; those who inherit two copies have an even higher risk, but not a certainty. Rare deterministic genes cause Alzheimer's in a few hundred extended families worldwide. These genes are estimated to account for less than 1 percent of cases. Individuals with these genes usually develop symptoms in their 40s or 50s.

Other risk factors Age, family history and genetics are all risk factors we can't change. However, research is beginning to reveal clues about other risk factors that we may be able to influence. There appears to be a strong link between serious head injury and future risk of Alzheimer's. It's important to protect your head by buckling your seat belt, wearing a helmet when participating in sports and proofing your home to avoid falls. One promising line of research suggests that strategies for overall healthy aging may help keep the brain healthy and may even reduce the risk of developing Alzheimer's. These measures include eating a healthy diet, staying socially active, avoiding tobacco and excess alcohol, and exercising both the body and mind.

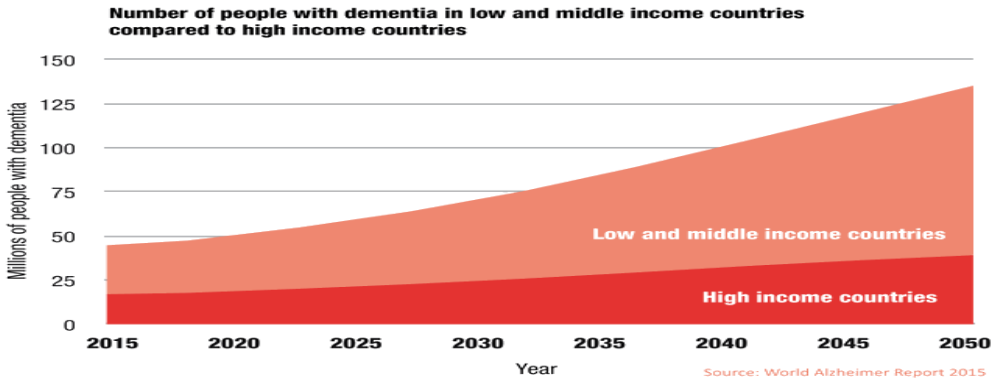

Fig. 1. The impact of disease

A systematic evaluation including 46 epidemiological studies concluded that an elevation of inflammatory biomarkers was associated with North American-style diets characterized by a high consumption of animal products, particularly red meat. In contrast, the same review indicates that diets based on plant foods are more associated with a decrease in these biomarkers. In this regard, a consensus seems to be emerging on the prevention of diets high in fruits and vegetables, olive oil and nuts, so rich in antioxidant compounds, on the MA. In parallel, a study shows that in more than 100 plant foods, a very high anti-inflammatory activitie was measured. These results corroborate other results indicating the beneficial effect of certain diets.

Interestingly the prevalence of AD in Indian people 70 to 79 years old is 4.4 fold less than in a similar population of the United States. The Indian diet is rich in spices such as chili, curry or curcumin.

Curcumin in particular is a potent free radical scavenger, better than vitamin E, which can provide effective protection against lipid peroxidation. Curcumin is also effective against the amyloid plaques in animal models. Thus, it appears be reasonable to speculate that curcumin could possibly prevent the onset of AD associated with oxidative stress.

South-American Indians knew the Stevia plant as “medicine for women” and use it in menopause an also to calm pain during menstruation. Probably its magnesium combats the cramps and its seven flavonoids (with estrogen-like effects) can ameliorate menopause symptoms . Stevia has an additional property useful in alimentation, since it does not alter glucose blood levels but simultaneously satisfies appetite for something sweet. In animal experiments, stevia prevents atherosclerosis because increases superoxide dismutase enzyme activists, thus removing oxidized LDL cholesterol and other harmful lipids from blood vessels wall . The preventive effects of steviosides on the development of AD and its relationship with soy-based diet surely deserve further studies.

When Dr. Alois Alzheimer first described the disease in 1906, a person in the United States lived an average of about 50 years. Few people reached the age of greatest risk. As a result, the disease was considered rare and attracted little scientific interest. That attitude changed as the average life span increased and scientists began to realize how often Alzheimer’s strikes people in their 70s and 80s. The Centers for Disease Control and Prevention recently estimated the average life expectancy to be 78.8 years. Today, Alzheimer’s is at the forefront of biomedical research, with 90 percent of what we know discovered in the last 20 years. Some of the most remarkable progress has shed light on how Alzheimer’s affects the brain. Better understanding of the disease’s impact may lead to better treatments.

New directions in treatment and prevention

One promising target is beta-amyloid. This protein fragment builds up into the plaques considered to be one hallmark of Alzheimer’s disease. Researchers have developed several ways to clear beta-amyloid from the brain or prevent it from clumping together into plaques. Experimental drugs that zero in on beta-amyloid are now being tested. Many other new approaches to treatment are also under investigation worldwide. We don’t yet know which of these strategies may work, but

scientists say that with the necessary funding, the outlook is good for developing treatments that slow or stop Alzheimer's.

Alzheimer's disease, emerging research suggests that the steps people take to maintain heart health may also reduce the risk of cognitive decline. This connection makes sense, because the brain is nourished by one of the body's richest networks of blood vessels, and the heart is responsible for pumping blood through these blood vessels to the brain. It's especially important for people to do everything they can to keep weight, blood pressure, cholesterol and blood sugar within recommended ranges to reduce the risk of heart disease, stroke and diabetes. Eating a diet low in saturated fats and rich in fruits and vegetables, exercising regularly, and staying mentally and socially active may all help protect the brain.

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