

Alzheimer Disease

Alzheimer Disease (AD) is an incurable and permanent brain disorder that worsens with age. It is caused by the progressive loss of nerve cells in the brain. AD makes up approximately 70% of cases of dementia, a general term used for brain disorders characterized by memory loss as well as mood and personality changes.

Signs of AD begin with short-term memory loss, difficulty in perception and expressing oneself, and inability to perform complex tasks. With disease progression, patients become unable to perform routine activities, and they start to exhibit long-term memory loss, progressive speech difficulties, and vision problems. Patients also show behavioral problems, hallucinations and impaired movement coordination which may result in frequent falls. Then, patients are ultimately bedridden, exhibiting low muscle mass and extreme lethargy. The cause of death normally involves unrelated health risks such as pneumonia.

Risk Factors

The onset of AD is influenced by genetic and environmental factors, with old age being the main risk factor. Over 90% of AD cases are diagnosed after the age of 65. Nevertheless, there are rare cases of AD that are diagnosed around the age of 30 and these are usually purely influenced by genetic factors.

Less than 5% of AD cases are familial. In these cases, inheriting a defective gene from a parent is generally sufficient to cause the disease regardless of environmental factors. Such cases are due to defects

in genes that are involved in the processing of proteins that are found on the surface of nerve cells and help in nerve growth and repair. If these proteins are not processed correctly, they can overaccumulate within the brain, forming plaques. These toxic plaques block interactions between nerve cells, cause inflammation and trigger nerve cell death.

Other AD cases (>95%) are sporadic, in that they occur in people without a genetic history of the condition within the family. In these cases, both genetic and environmental factors are involved in causing the disease. Sporadic AD is ~60-80% heritable and is influenced by various lifestyle factors. Genetic factors include mutations and variants of many genes, most commonly those involved in prevention of plaque formation, as well as genes involved in other processes, such as cholesterol metabolism and immune response. Environmental factors such as eating foods containing high sugar and fat, high stress, as well as suffering from Obesity and Type 2 Diabetes have all been associated with increased risk of AD.

Diagnosis and Management

Diagnosis of AD involves various tests that assess memory and thinking ability, as well as examining family history for dementia. Recently, various diagnostic AD biomarkers have been identified; these are checked for by examining the cerebrospinal fluid, and less invasively through live brain scans. Other types of brain imaging can look for the shrinking of certain brain areas known to be affected in AD. No cure currently exists; rather current treatment aims

at managing the disease by boosting brain activity in order to reduce disease progression. A healthy lifestyle has been shown to protect against AD. Performing simple exercises (e.g. walking), eating certain foods such as those that are usually incorporated in the Mediterranean diet, performing complex tasks (that require mental effort), reducing stress and having a healthy psychology are all associated with reduced risk and slowed progression of AD.

AD in the Arab World

In the Arab region, the prevalence of dementia ranges from as low as 0.04% in Tunisia and Saudi Arabia to as high as 4.5% in Egypt. As life expectancy is increasing with the advancements in healthcare, the proportion of the elderly in the Arab world is expected to grow from 5% to 17% by 2050. The number of individuals

diagnosed with dementia (including cases of AD) since 2001 is expected to quadruple by 2040.

AD is the most common dementia disorder in the Arab world, causing over half the cases of dementia reported in Saudi Arabia and Oman. The prevalence of AD above the age of 60 was estimated to be as high as 20.5% in a region in Palestine where illiteracy was thought to be a major contributing factor. Additionally, AD in the Arab world is more prevalent in females than in males, with countries such as Qatar having almost twice as more female than male AD cases. The lack of awareness and training in managing AD and other old-age disorders led to starting multiple projects to help rectify the current situation; these include journals such as the Middle East Journal of Psychiatry and Alzheimer's, and facilities such as the Middle East Academy for Medicine of Ageing.

