Alzheimer's Disease—what is it?

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Alzheimer’s disease (AD) is a progressive neurodegenerative disorder and the most common cause of dementia. This disease causes individuals to experience severe memory loss and affects cognitive function. Alzheimer's affects millions of individuals worldwide, while the direct causes of the disease remain complex, involving a combination of genetic predisposition, lifestyle factors, and environmental influences. Among these factors, research suggests a significant correlation between environmental exposures and its link to Alzheimer's disease.

To begin, my studies focus on a myriad of factors that can cause Alzheimer's disease; one of the main contributors to the cause of Alzheimer's disease is oxidative stress, which involves the production of free radicals in the body. Free radicals are highly reactive molecules that can damage DNA, proteins, and lipids within the body, which leads to health issues. In this case, the development of free radicals targets the brain. Over time, the free radicals in the brain can lead to oxidative damage and respond in inflammatory ways.

Furthermore, neuroinflammation is one of the leading factors to the cause of Alzheimer's that occurs in the brain, which makes it difficult for the body to respond to the disease appropriately. Moreover, amyloid-beta plaques, which are protein clumps that build up in the brain, are a significant cause of memory loss among dementia victims. However, these protein clumps lack complete research, so we do not entirely understand the reasoning behind the formation of protein clumps. The amyloid-beta is a protein that affects neural growth and repair. These clump-like proteins make it difficult for the immune system to fight back neurodegenerative disease because they harm cellular processes such as cellular regeneration.

Currently, we know that the leading reasoning behind dementia is neuroinflammation and the formation of protein clumps within the brain that tarnish the ability of cells to combat neurodegeneration, particularly memory loss. However, there is no clear evidence proving the direct cause of these protein build-ups. There is hope that, over time, medicine will come to conclusions that will assist victims of neurodegenerative disease by studying such mysteries.

Citations

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