Alzheimer’s Risk Factors: A Preventative Perspective

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Introduction

Alzheimer’s disease is an increasing epidemic among all populations, especially those with a lifestyle that leads to high cholesterol, high blood pressure and diabetes such as in the Hispanic population. Because of the late detection of AD there is an increase in the number of people with terminal stage AD this is because amyloid plaques tau tangles are able to accumulate without noticeable symptoms. By the time it is caught, it is too late to alter the lifestyle to show inhibition of the spread of the disease. As a comprehensive care to those populations that have high coexisting medical conditions with AD we suggest a change in diet and lifestyle. Studies have shown that populations with a Mediterranean type diet such as one with low red meat intake and high uncooked plant-based food consumption have a lower population concentration of Alzheimer’s. High red meat intake is conclusive with a high intake of saturated fatty acids which leads do a decrease in cognitive function. Plant-based foods tend to be high in polyphenols which inhibit the creation of senile plaques.

Abstract

Dementia is a decline in cognitive function, usually affecting people older than 65. Patients affected by dementia lose their ability to function independently, resulting in a large associated economic burden for disease onset and progression. Due to a globally aging population, the numbers of those living with dementia are expected to grow threefold by 2050 [1], threatening a global dementia epidemic [2]. Of all the deteming diseases, Alzheimer’s disease (AD) is the most common, impacting millions of people worldwide. The subjective cognitive impairment (SCI) is suggested as an earlier stage than mild cognitive impairment (MCI) in the disease development. SCI is a feeling of cognitive worsening without any cognitive deficit [3] which is associated with an increased risk of AD [4]. The cognitive failure that becomes apparent at the clinical onset of AD is the late stage of a process that has progressed silently for many years [5]. Hence, the diagnosis of AD is limited to the late stage of the disease. AD develops as a result of complex interactions among multiple factors, including age, genetics, lifestyle, and coexisting medical conditions such as high blood pressure. Although some risk factors such as genetics cannot be altered, other risk factors such as lifestyle can be changed to reduce the risk of sporadic AD [6]. The modifiable risk factors combined account for more than half of AD cases [7]. Recent reports demonstrate that production of amyloid plaques and tau tangle can be promoted and increased in the brain of people with dementia due to the various risk factors for years, or even decades, before symptoms appear. Evidence from human and animal studies indicate that several risk factors such as high blood pressure, high cholesterol level, and smoking are also associated with an increased risk of AD. The risk factors also may increase the rate of cognitive decline. A prevention study focusing on risk reduction may be beneficial for people who are at the early stage of cognitive impairment. The aim of this study is to 1) summarize the state-of-the-art risk factors and the underlying mechanisms that may contribute to the development and progression of AD 2) provide a prevention protocol that includes modules in risk reductions. The involvement of these risk factors in the process of AD development will help us understand how to prevent AD by reducing risk factors for individuals that are already at a high risk of developing the disease or for individuals at the beginning of the disease development.

References