



PHARMACOLOGICAL PERSPECTIVE TO MITIGATE THE COVID-19 MANAGEMENT IN THE ALZHEIMER'S DISEASE AND RELATED DEMENTIA: AN UPDATE

¹Subhasish Sahoo, ²Diptirani Rath

¹Researcher, ²Assistant Professor

School of Pharmaceutical Sciences

Siksha 'O' Anusandhan (Deemed to be University), Bhubaneswar, India

Abstract

Background

COVID-19 was found in late 2019 which causes severe respiratory illness. Cognitive impairment patients who are suffering from Alzheimer's Disease and Related Dementias (ADRD) are having a higher risk of COVID infection and other pulmonary diseases leading to a high mortality rate. A risk factor is the 'age' that forms a link between Alzheimer's and the morbidity related to COVID 19. This perspective encloses the measures which may help to mitigate the management of COVID-19 in Alzheimer's Disease and Related Dementias (ADRD). The article updates primarily on prevalence, incidence, associated risk factors, supervision, and care for patients suffering from ADRD which can help to decrease the burden on the patients suffering from ADRD.

Methods

This article was reviewed referring to websites like Scopus, Google Scholar, ScienceDirect, PubMed, MedKnow Publications, NCBI.NLM.NIH, EBSCO, Web of Science, etc.

Results and Discussion

It was illustrated by various cases of COVID 19 that people with elderly i.e., above 70 years were at high risk of mortality due to weaker immune system, synaptic loss, and impaired cognition. Mortality due to pneumonia is twice more prevalent in dementia patients than in the without dementia. Smoking is another risk factor for AD in elderly persons. According to the previous cases reported, it was found that people who were taking high consumption of fish, omega-3-polyunsaturated fatty acid diet linked to lessen the chances of AD and dementia-like symptoms. Patients with AD and related dementia should be encouraged for virtual meeting/ e-consultation/ telemedicine/ online mental health programs instead of clinical visits. Vaccination would greatly assist geriatric people during the COVID-19 pandemic which may help them to overcome the infection.

1. Introduction

The novel coronavirus (COVID 19) was found in late 2019 which causes severe respiratory and pneumonia-like illness. It is affected the 113 countries worldwide as a pandemic situation declared by the WHO [1]. The people with the aged group and cognitive impairment patients like Alzheimer's disease (AD) are having a higher risk of COVID infection. It has been observed that the level of C- reactive proteins (CRP) and multi-organ dysfunction is higher in elders than the young ones during the infection of COVID-19. The mortality rate in the elderly age group (5.56 %) was more than in the middle and young age group (5.26 %) [2].

2. Prevalence and incidence of ADRD

It was estimated that there were 4.7 million people with dementia and AD worldwide. Around 0.7 million people were included in the age group of 65 to 74 years; 2.3 million people were included in the age group of 75 to 84 years and 1.8 million people were included in the age group of 85 years or above [3]. The COVID 19 pandemic situation has changed many lives terribly in a short period. This impacted major socio-economic threat-like conditions to the older age group chronologically. Most of these cognitive impair patients are not in a condition to understand the vulnerability, severity, and consequences of this viral infection due to their short-term memory loss. Rather, it may cause depression and anxiety for these people under isolation and quarantine. This has become an apathetic and challenging situation in this pandemic that how we can deal with them. This article has discussed the risk factors, pharmacological approach, management, challenges, and consequences in people with Alzheimer's disease and related dementia (ADRD) in current COVID 19 situations.

3. Risk factors and mortality associated with ADRD

People suffering from ADRD are more prone to have heart disease, diabetes, and other health issues as compared to the age group without ADRD [4]. One of the important risk factors is the 'age' that forms a link between Alzheimer's and the morbidity related to COVID 19. It was illustrated by various cases of COVID 19 that people with elderly i.e., above 70 years were at high risk (9 out of 10 cases) of mortality due to weaker immune system, synaptic loss, and impaired cognition. Mortality due to pneumonia is twice more prevalent in dementia patients than in the without dementia. Alzheimer's and dementia patients are most often unable to follow the instructions recommended by the health department, like covering the mouth while sneezing, wearing a mask, refraining from frequent touching to face, maintaining social distancing from others, or remaining self-quarantine at home, etc [1].

Smoking is another risk factor for AD in elderly persons i.e., a significant association between cigarette smoking and the development of risk of AD [5]. Elder people (86 %) with cardiovascular disease (CVD), chronic kidney disease, diabetes, chronic pulmonary disease, and cancer are presenting comorbidities with those infected with COVID-19 in ICU cases [6]. The mortality rate is significantly higher in patients with age above 60 years (5.4 %) than with patients aged less than 60 years (1.4 %) [7].

In a study, it has been established that low levels of folate, Vit B₆, Vit B₁₂, and rise levels of homocysteine in serum are found to be another sensitive marker for the decline in cognition in older adults [8]. It was previously reported that people who were taking high consumption of fish, omega-3-polyunsaturated fatty acid diet linked to lessen the chances of AD and dementia-like symptoms [9].

There might be an aggravation of neurodegenerative-like symptoms found in patients with severely affected COVID 19 infections after recovery [10], [11]. Because of the isolation, elders are getting more agitation, anxiety, and depression which is a major concern psychologically and socially [12].

4. Supervision and care for ADRD patients in COVID time

They may take melatonin (5 mg; over 10 weeks duration) and exercise regularly which are important measures to prevent sleep disturbance thereby improving the lifestyle [13]. In this difficult time of COVID 19, patients with AD and dementia should be encouraged for virtual meeting/ e-consultation/ telemedicine/ online mental health programs instead of clinical visits and to minimize the deprescribing [14], [15]. Self-medication and elective surgeries must be strictly avoided in this pandemic condition to overcome any hazard or physical health risk [15]. One of the preventive measures is to isolate the elderly that will surely keep away from the transmission [12]. Intake of cocoa has been considered a psychostimulant, enhancing cerebral blood flow and a mood elevator in patients with cognitive disabilities [16]. The anxiety of losing loved ones, lack of physical actions, and vulnerability of death are some of the triggering factors for patients having ADRD in this COVID pandemic period. It has been shown that people with ADRD are also having the risk of suicidal effort and self-negligence which has another concern. Elders should be engaged in family decision-making and social linking etc. They should be treated with much attention and active emotional support to decrease their stress level at this COVID pandemic time and self-medication can be fatal at this time [17]. Most importantly, early detection and diagnosis in geriatric people have a significant role to prevent any respiratory infections of COVID 19.

5. Vaccination drive in the geriatric group with ADRD

People suffering from ADRD have a higher risk of infection, hospitalizations and the mortality rate might be very higher in these groups[18]. With time the illness goes on increasing, the person suffering from ADRD needs a constant increase in love, support, and supervision. These include diagnosis, change in drug administration, medical accessories, care, etc. [19]. Vaccination would greatly assist geriatric people during the COVID-19 pandemic by increasing their immunity and strength which may decrease the mortality rate. Vaccination was a challenging task for health care providers to ensure full vaccination drive in the geriatric group suffering from ADRD. As people like ADRD patients may face various problems such as memory complications at a later point in time vaccination is extremely important for these people [18]. With time the illness goes on increasing, the person suffering from ADRD needs a constant increase in love, support, and supervision. These include diagnosis, change in drug administration, medical accessories, care, etc. Patients suffering from ADRD might not be able to remember the safety precautions carried out to prevent infection, they might not be able to understand the need for isolation and self-care after getting infected during the prevailing pandemic [20]. The vaccination drive for these individuals should be done at utmost priority to control the mortality rate in society.

Conclusion

Thus, this article will help the researcher to know more about the proper care and management of people with ADRD in this COVID-like panic situation. At present, no such view or opinion on AD and dementia-related diseases has been outlined in this pandemic COVID situation. This article may bring to the notice how we can care for and manage them for a healthy living while minimizing the co-morbidity case. Apart from these, ignorance, isolation, loneliness, fearlessness along abusiveness is more problematic than the disease.

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Abbreviations

AD: Alzheimer's Disease; ADRD: Alzheimer's Disease and Related Dementias; COVID-19: Coronavirus Disease 2019; WHO: World Health Organisation; ICU: Intensive Care Unit; CRP: C-Reactive Protein; CVD: Cardiovascular Disease

