

## Alzheimer's Disease Patients in Areas Endemic for Lyme and Related Tick Borne Diseases are Now also Being Exposed to the New Risk, of Infection with Coronavirus COVID-19

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**Received:** March 03, 2020; **Published:** April 29, 2020

"Coronavirus COVID-19 circa 2020, poses a potential new risk factor to Alzheimer's disease patients, and exposes them to additional neuropathogenic events".

Alzheimer's disease is associated with advancing memory impairment and additionally "behavior disturbances and profound deterioration of daily life activities" [1]. Dementia is a disease most frequently associated with individuals of advancing age [2]. Alzheimer's disease is most frequently associated with dementia in elderly patients [2]. This disease is "morphologically characterized by extracellular beta-amyloid plaque deposition, intra-neuronal tau pathology, neuronal death vascular dysfunction and inflammatory processes" [2].

In areas endemic for Lyme and related tick borne diseases it is important for physicians to also be able to distinguish True Alzheimer's disease from Neurological Lyme disease that manifests Alzheimer's like symptoms [3,4]. True Alzheimer's disease hasn't any cure but, Neurological Lyme disease manifesting Alzheimer's disease like symptoms can be treated with antibiotics in the early stages [3,4].

In addition, to distinguishing true Alzheimer' disease from Neurological Lyme disease mimicry in areas endemic for Lyme and related tick borne infections, it is also important to realize that there can be also both bacterial infections and accompanying mycotic infections in Alzheimer's disease brains thus creating a "polymicrobial infection" [1]. These mycotic and bacterial infections can thus further impair an Alzheimer's disease patient's immune system.

Morfopoulou., *et al.* found that there is a "direct association" between strain OC43 of the human coronavirus and neurological disease in humans [5].

The investigation of Morfopoulou., *et al.* further revealed that this strain of the coronavirus which was able to invade the human central nervous system, and cause "neuropathological effects" was also "responsible for approximately 20% of common colds and more severe respiratory conditions in certain vulnerable individuals" [5]. The study put forth the "hypothesis that the human respiratory Coronavirus can cause certain neurological diseases of unknown origin, such as multiple sclerosis, Alzheimer's disease, Parkinson's disease, and encephalitis" [5].

It is still too early in the course of the current worldwide epidemic of Coronavirus COVID-19 to be able to determine the long term neurological consequences of this new strain of coronavirus among survivors of infection with this pathogen.

A full scale study that focused on neurological effects in those individuals who have survived Coronavirus COVID-19 infection and also had pre-existing True Alzheimer's disease, Neurological Lyme disease manifesting Alzheimer's like symptoms, or concurrent True Alzheimer's disease with Neurological Lyme disease manifesting Alzheimer's like symptoms is warranted.

### Bibliography

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**Volume 12 Issue 5 May 2020**

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