



The alzheimer's gene- predicting the severity of covid-19

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Abstract:

In the current scenario of increasing global mortality and morbidity caused by the novel SARS-CoV2, one of the main challenges faced by the medical community is the prevention of the disease illness to severity. Any methods or system that can predict the population that is vulnerable in contracting the disease or those susceptible for progressing to severe illness can add to the welfare of the particular population. People with hypertension, diabetes, COPD, kidney diseases, coronary artery diseases and other neurological defects such as dementia has been already implicated in the risk group. However in a recent a study conducted in the UK BioBank amongst individuals with the ApoE gene variants $\epsilon 4$ and $\epsilon 3$ it was been found that individuals presenting the ApoE gene variant $\epsilon 4$ were at an increased risk for developing the disease as well as for progressing to severe illness in comparison to those who have $\epsilon 3$ variant. The ApoE gene and its variants has been implicated to play a major role in the metabolism of



fats, development of atherosclerosis, cardiovascular diseases and Alzheimer's disease. The study was conducted in the UK with a total participants of 322,984 who possessed the ApoE variants in the following frequency: $\epsilon 4\epsilon 4$ - 3% , $\epsilon 3\epsilon 4$ - 28%, $\epsilon 3\epsilon 3$ - 69%(most common genotype). The increased risk to susceptibility of developing the diseases well as progression to severe illness was found to be true for individuals with ApoE $\epsilon 4$ even without pre-existing dementia as well as other comorbidities.

Keywords: ApoE $\epsilon 4$ gene, COVID-19, severity

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