



## THE CORONA VIRUS DISEASE (COVID-19) MAY CAUSE DEPRESSION AND ANXIETY

### Pharmacy

**M. Mahima Swaroopa\***

Department Of Pharmacy Practice, KVSRR Siddhartha College Of Pharmaceutical Sciences. \*Corresponding Author

**P. Saranya**

Department Of Pharmacy Practice, KVSRR Siddhartha College Of Pharmaceutical Sciences.

### ABSTRACT

Corona virus disease (Covid-19) pandemic is creating a widespread panic. Virus-related inflammation has long been known to increase the risk of developing several types of psychiatric disorders including bipolar disorder, major depressive disorder and schizophrenia. "Viral Pathogens may disrupt neurodevelopment and affect the immune mechanisms at key developmental stages. Chronic infection with any of the viruses can lead to raised interferon-alpha levels, proinflammatory cytokines known to cause Major depressive disorder associated. In some people, viral infections can cause symptoms, such as irrational fears, that are typically associated with an anxiety disorder and have been found to not only precede but also contribute to the risk of developing social phobias. Hence, Corona virus disease (COVID-19) belonging to the family Coronaviridae may also be related to the risk of developing psychiatric disorders like depression and anxiety similar to other viral diseases. Hence more holistic approaches to deal with Corona Virus Disease (COVID-19) both emotional and physical well-being are getting equal importance.

### KEYWORDS

COVID-29, Viral Pathogens, Depression, Anxiety, Social Phobias.

Corona virus disease (Covid-19) pandemic is creating a widespread panic and fear evoked was similar way that hasn't been felt since the 9/11 terrorist attack. Neuropsychiatric conditions are one of the leading causes of disability worldwide. The sight of empty grocery stores, empty streets, overflowing emergency rooms and getting locked at home shows a picture of our new reality. Empty grocery stores alone can be deeply distressing for many, triggering all sorts of negative emotions. On the other hand Virus-related inflammation has long been known to increase the risk of developing several types of psychiatric disorders including major depressive disorder, bipolar disorder and schizophrenia.<sup>1</sup>

#### Mechanism of Action of Microbial Pathogens causing symptoms of Anxiety:

When an infection enters the body, the immune system produces antibodies to kill the harmful substance. But in some people, these antibodies mistakenly attack healthy cells in the brain. This causes brain inflammation and the onset of symptoms that mimic psychiatric illnesses, such as anxiety.<sup>2</sup> The idea that there might be a relationship between the immune system and brain disease isn't new. Auto antibodies were reported in schizophrenia patients in the 1930s. Subsequent work has detected antibodies to various neurotransmitter receptors in the brains of psychiatric patients, while a number of brain disorders, including multiple sclerosis, are known to involve from abnormal immune system activity.

"Viral Pathogens may also disrupt neurodevelopment and affect the immune mechanisms at key developmental stages," Children that are infected at a young age usually recover without any late complications. However, the viruses lie dormant (latent) in various organs and tissues including the central nervous system and the salivary glands and can be reactivated under certain circumstances, even after years.<sup>3</sup> In general, severe infection in the early stage has been found to be associated with risk of physical health problems in later adult hood. For example a child with early respiratory infections have increased risk of respiratory disease in later life.<sup>4</sup> However, more recently, there are data from several studies have suggested that early infection may also be related to poor mental health outcomes. Data from adult cross-sectional epidemiologic samples shows the higher rates of schizophrenia and other psychotic disorders among those who exposed to early infection.<sup>5</sup>

#### Mechanism of Action of Microbial Pathogens Causing Depression:

Viral infection has been postulated as one of the risk factors of depression, and human immunodeficiency virus, hepatitis C virus, varicella-zoster virus, and human T-cell lymphotropic virus have been found to be related to depression.<sup>6-9</sup> One mechanism that explains how such viruses cause depression is through the effects of interferon alpha.

Chronic infection with any of the viruses can lead to raised interferon-alpha levels (interferon-alpha is secreted by cells of the immune system as it tries to control the virus), and it is now known that interferon-alpha can significantly affect the serotonin system<sup>10-14</sup> and Major depressive disorder is known to be associated with increased production of proinflammatory cytokines, such as interleukin-1 (IL-1), IL-6, and interferon gamma (IFN- $\gamma$ ).<sup>15</sup> A meta-analysis of several studies on this issue found that several cytokines and inflammatory markers (interleukin 1 and 6, C-reactive protein) were positively correlated with depression.<sup>16</sup>

In some people, infections can cause symptoms, such as irrational fears, that are typically associated with an anxiety disorder and have been found to not only precede but also contribute to the risk of developing social phobias.<sup>17</sup> Not just people with pre-existing mental health issues, even for the general public, it is important to seek help. In Noida, a 60-year-old man has started showing similar traits after he came to know two weeks ago that his grandson is stuck in one of the virus affected countries in Europe. He wakes up in the middle of the night and screams out his grandson's name.<sup>18</sup>

#### CONCLUSION:

Based on the above considerations, Corona virus disease (COVID-19) belonging to the family Coronaviridae may also be related to the risk of developing psychiatric disorders like depression and anxiety similar to other viral diseases. Hence more holistic approaches to deal with Corona Virus Disease (COVID-19) both emotional and physical well-being are getting equal importance. To educate the general public, the World Health Organization (WHO) has come up with Mental Health and Psychosocial Considerations during COVID-19 Outbreak guidelines and "National Institute of Mental Health and Neuro-Sciences (NIMHANS) has also launched a toll number to support people with mental health issues due to the ongoing countrywide lockdown. Many psychologists have stated that keeping active during the lockdown period was vitally important. Passive is no use and makes you feel anxious and increases anxiety".<sup>18</sup>

#### REFERENCES:

1. Lopez AD, Mathers CD, Ezzati M, Jamison DT, Murray CJL, editors. Global Burden of Disease and Risk Factors. Oxford University Press/World Bank; New York, NY: 2006.
2. Coughlin SS. Anxiety and Depression: Linkages with Viral Diseases. Public Health Rev. 2012;34(2):92.
3. Bhupesh K, Prusty, Nitish Gulve, Sheila Govind, Gerhard R. Krueger, Julia Feichtinger, Lee Larcombe, Richard Aspinall, Dharam V. Avlashi, Carla T. Toro. Active HHV-6 infection of cerebellar Purkinje cells in mood disorders. Frontiers in Microbiology, 2018.
4. Vinuya RZ. Upper airway disorders and asthma: a syndrome of airway inflammation. Ann Allergy Asthma Immunol. 2002;88(4-1):8-15.
5. Seltin JP, Brown AS, Moons KG, Slaets JP, Susser ES, Kahn RS. Prenatal exposure to the 1957 influenza pandemic and non-affective psychosis in The Netherlands. Schizophrenia Res. 1999;38(2-3):85-91
6. Coughlin SS. Anxiety and depression: linkages with viral diseases. Public Health Rev 2012; 34:92.

7. Lucaciu LA, Dumitrascu DL. Depression and suicide ideation in chronic hepatitis C patients untreated and treated with interferon: prevalence, prevention, and treatment. *Ann Gastroenterol*.2015;28:440-7.
8. Chen MH, Wei HT, Su TP, et al. Risk of depressive disorder among patients with herpes zoster: a nationwide population-based prospective study. *Psychosom Med* 2014; 76:285-91.
9. Stumpf BP, Carneiro-Proietti AB, Proietti FA, et al. Higher rate of major depression among blood donor candidates infected with human t-cell lymphotropic virus type 1. *Int J Psychiatry Med* 2008; 38:345-55.
10. Pariente CM, Orrú MG, Baita A, Farci MG, B. CarpinielloCarpiniello Treatment with interferon - a inPatients with chronic hepatitis and mood oranxiety disorders. *Lancet* 1999; 354 : 131-132
11. Ader R, Fellen DL, Cohen N (Eds). *Psychoneuroimmunology*. San Diego CA: AcademicPress, 1991.
12. Herbert TB, Cohen S. Depression andimmunity: a meta-analytic review. *Psychol Bull*1993; 113 : 472-486.
13. Infections cause depression – Softapedia.htm
14. Chacon C, Monro M, Harper I. Viral infectionsand psychiatric disorders. *ActaPsychiatr Scand*1975; 51: 101-103.
15. Dahl J, Ormstad H, Aass HC, et al. The plasma levels of various cytokines are increased during ongoing depression and are reduced to normal levels after recovery. *Psychoneuroendocrinology* 2014;45:77-86
16. Herbert TB, Cohen S. Depression and immunity: a meta-analytic review. *Psychol Bull*1993; 113 : 472-486
17. Ajdacic-Gross V, Aleksandrowicz A, Rodgers S, et al. Social Phobia Is Associated with Delayed Onset of Chickenpox, Measles, and Mumps Infections. *Front Psychiatry*. 2016; 7:203.
18. <https://www.nationalheraldindia.com/opinion/mental-health-risks-posed-by-hysteria-and-lockdown> accessed on 15th March 2020.