

Health Effects Of Covid- 19 Across The Globe -A Review

Type of Study : Review

Running Title: A Review on Health Effects of Covid- 19 across the Globe

SachinAditya B¹,JothiPriya.A² ,V. Vishnu Priya³

¹*Department of Physiology, Saveetha Dental College and Hospitals, Saveetha Institute of Medical and Technical Sciences, Saveetha University, Chennai -77.*

²*Assistant Professor, Department of Physiology, Saveetha Dental College and Hospitals, Saveetha Institute of Medical and Technical Sciences, Saveetha University, Chennai -77*

³*Professor, Department of Biochemistry, Saveetha Dental College and Hospitals, Saveetha Institute of Medical and Technical Sciences, Saveetha University, Chennai -77.*

E mail id - ¹151901045.sdc@saveetha.com, ²jothipriya.sdc@saveetha.com,
³vishnupriya.sdc@saveetha.com

Abstract: Numerous viral infections have arisen and affected global healthcare facilities. Millions of people were at severe risk of acquiring several evolving viral infections through several factors, Covid- 19 being one of the most popular ones requiring more efforts to control its spread. During the epidemic period of coronavirus diseases, appropriate oral health management and disease prevention of children is very important for children's oral and general health. In order to prevent the occurrence of cross-infection and epidemic spreading of Covid- 19 during dental practice, the recommendation to parents include making them hand hygiene at home and include proper oral care habits. Covid-19 is a global human disaster presented with an emphasis on disturbing mental health aspects of the ongoing pandemic. According to the cross-sectional study, two weeks after the occurrence of Covid-19 in chin almost 40% of the affected youth were proven to have psychological problems, it is suggested that this is likely the zoonotic origin of Covid-19. Person to person transmission of Covid-19 infection led to the isolation of patients that were subsequently administered a variety of treatments, Extensive measures to reduce person to person transmission of Covid- 19 have been implemented to control the current outbreak.

Keywords: Covid-19; coronavirus; mental health; oral health; pandemic

1. INTRODUCTION:

Numerous viral infections have arisen and affected global healthcare facilities. Millions of people were at severe risk of acquiring several evolving viral infections through several factors, Covid-19 being one of the most popular ones requiring more efforts to control its spread. Coronavirus typically result in respiratory and enteric infections affecting both animals and humans and were considered relatively benign to humans before the severe acute respiratory syndrome outbreak in 2002 and 2003 in china [1][2][3][4], A decade later, middle east respiratory syndrome (Mers-Cov), another pathological coronavirus with a clinical picture reminiscent of SARS, was isolated in patients presenting with pneumonia in the

middle eastern countries [5], Just recently in december 2019, the novel coronavirus has emerged in Wuhan, China and has turned into a global health concern [6]. Person to person transmission of Covid- 19 infection led to the isolation of patients that were subsequently administered a variety of treatments, Extensive measures to reduce person to person transmission of Covid- 19 have been implemented to control the current outbreak. Although a lot of studies have been done on Covid-19, its health effects were not known widely, This review highlights the major health effects of Covid-19.

This review was done based on the articles obtained from Various platforms like PubMed, PubMed central and Google scholar and other platforms . They were collected with a restriction in time basis till June 2020. The inclusion were original research papers, in vitro studied among various conditions and articles that contain pros and cons. Exclusion criteria came into account for review articles, retracted articles and articles of other languages. All the articles were selected based on Covid- 19.

2. VIROLOGY AND PATHOGENESIS:

Coronaviruses are enveloped positive stranded RNA viruses that belong to the family coronaviridae[7], People around the world are frequently infected with four human coronaviruses typically leading to an upper respiratory tract infection manifested by common cold symptoms. However, coronaviruses, which are zoonotic in origin, can evolve into a stain that can infect human beings leading to fatal illness [8]. The expansion of genetic diversity among coronaviruses and their consequent ability to cause disease in a human being is mainly achieved through infecting peridomestic animals, which serve as intermediate hosts, nurturing recombination and mutation events[9]. In general, coronaviruses first replicate in epithelial cells of the respiratory and enteric cells, which leads to cytopathic changes[10]. It has also been hypothesized that the novel virus might use angiotensin converting enzyme 2 as a receptor similar to SARS-Cov, Unlike SARS or MERS, in primary human airway epithelial cells provide better growth conditions for 2019-nCoV than standard tissue culture cells. Geographical occurrence of goitre[11], obesity[12][13] and sleep patterns were explained[14].

3. TREATMENT:

There are no vaccines or specific antivirals for 2019-nCoV. Nonetheless, there are ongoing efforts for vaccine development[15]. RedesVir , an antiviral drug developed for the treatment of Ebola virus disease, were used for the treatment of the first US case of 2019-nCoV[16]. An ongoing randomised controlled trial evaluating the efficacy and safety of Lopinavir-ribovir and interferon-alpha 2b in patients infected with the novel coronavirus was launched on january 10 2020. However , isolation and supportive care including oxygen therapy, fluid management, and administration of antimicrobials for treatment of secondary bacterial infection to alleviate the symptoms and prevent end-organ dysfunction is currently recommended by WHO for suspected and confirmed cases requiring hospital admission. Many studies have been done on neonatal jaundice[17], asthma[18], muscular endurance[19], fitness of dentist[20], tongue exercises[21], liver diseases[22], its treatment[23], nasal spirometry and lower back pain [24,25], myocardial infarction and peak expiratory flow rate (PEFR) [26,27].

4. MENTAL EFFECTS OF COVID-19:

Covid- 19 related mental disorders mainly manifest as anxiety, depression, stress and fear or a combination of these. Quarantined people often worry, hoping to be removed from quarantine as soon as possible. Uninfected people fear that they may get infected by the affected, some people also show increased desire for cleanliness, this shows the anxiety of the people. Clinical manifestations of depressions include dull-looking, poor appetite, weight loss, loss of interest, irritability and so on some people may suffer from pathological exaggeration of the danger. To prevent cross-infection, patients are mostly admitted to separate wards and a prolonged period of quarantine after discharge, this causes patients to develop a feeling of loneliness. Patients feel panic in regard to the disease itself. Medical staff wear thick isolation clothing, so the feelings of intimacy and trust that a patient should feel around medical staff are replaced by fear. The increasing number of Covid- 19infections and deaths can also increase patient fear [28].

5. PREVENTIVE MEASURES:

The prevention of Covid- 19related mental disorders should focus on the following aspects, creating a human isolation environment, ensuring effective communication and providing adequate psychological services[6]. Steps should be taken to strengthen health education, eliminate excessive fear of Covid- 19and eliminate social prejudice and social disamination. Special wards installed with protective facilities and constraints should be set up to facilitate monitoring and to prevent suicides, attacks, escape attempts and other undesirable events. It is also important to provide scientific and appropriate information to mitigate public anxiety, pessimism and other negative emotions. People with psychological problems should be able to consult with clinical psychotherapists to detect and deal with their issues quickly. Personnel working in respiratory and infection departments and non-psychiatric staff isolation wards should be educated to identify and prevent psychological problems, promote the transition of medical services to a biopsychosocial integrated medical model to improve the quality and level of medical services[2]. Early detection of various psychological crises, effective intervention and treatment with psychotropic drugs should be conducted under guidelines of psychiatrists. The basic principles include personalisation, selecting targeted drugs based on clinical symptoms and paying special attention to adverse drug reactions.

6. ORAL HEALTH AND COVID-19:

Disturbances of oral microbiota balance are a result of systemic therapies and intraoral environment alteration may lead to further problems. Hence , it would be prudent for professional associations to provide urgently the recommendations for persons who are or have been aggressively treated for Covid- 19 on oral health seems to be multidirectional, immune related and most probably indirect, acting through various routes, reflecting the pathological nature of coronavirus respiratory tract invasion via mucous membrane. The effect of complex pharmacotherapy should not be underestimated when assessing patients' oral health following intense hospitalization and it can be even more profound as new experimental drugs recommended for Covid- 19 diseases will inevitably emerge in the nearest future. As reported SARS-coV revealing its certain neutropenic and mucotropic abilities may potentially affect the functioning of salivary glands, taste/smell sensations and oral mucosa integrity, interfering with dynamic oral environment also by exerting influence on microbiota balance.

7. TRANSMISSION:

The first case of Covid- 19 disease was linked to direct exposure to the Huanan Seafood market, the animal to human transmission was presumed as the main mechanism. Nevertheless, subsequent cases were not associated with this exposure mechanism. Therefore it was concluded that the virus could also be transmitted from human to human and symptomatic people are the most frequent sources of Covid- 19 spread. The possibility of transmission before symptoms develop seems to be infrequent, although it cannot be excluded. Based on the data from the first cases in Wuhan and investigation conducted by China, the incubation time could be from 1-2 weeks as the longest time of active infection was 12.5 days This data also showed that this novel doubted about every 7 days, whereas the basic reproduction number is 2.2. It must be emphasized that this information is the result of the first reports. Thus, further studies are needed to understand the mechanisms of transmission, the incubation times and the clinical course and the duration of infectivity.

8. EVALUATION:

Most countries are utilising some type of clinical and epidemiologic information to determine who should have testing performed. In the US, criteria have been developed for persons under investigations (PUI) for Covid-19. According to the US CDC most patients confirmed with Covid- 19 have developed fever symptoms and acute respiratory diseases. If a person is a PUI, it is recommended that practitioners immediately put in place infection control and prevention measures. Initially , epidemiologic factors to assist in the decision making regarding testing of covid-19. In patients with confirmed Covid- 19 diagnosis, the laboratory evaluation should be repeated to evaluate for viral clearance prior to being released from observation. The availability of testing will vary based on which country a person lives in with increasing availability occurring nearly daily. Concerning laboratory examinations, in the early stage of the disease, a normal or decreased total white blood cell count and a decreased lymphocyte count can be demonstrated. Lymphopenia appears to be a negative prognostic factor. Increased value of liver enzymes, LDH, Muscle enzymes and C-reactive protein (CRP) can be found. There is a normal procalcitonin value. In critical patients D-dimer value is increased, blood lymphocytes decreased persistently and laboratory alterations of multiorgan imbalance are found.

LIMITATIONS:

Long term complications among survivors of infection with SARS-CoV-2 having clinically significant Covid- 19 disease are not yet available. The mortality rates for cases globally remain between 1% to 2%, preventive measures to control Covid- 19 are not completely followed.

FUTURE SCOPE:

Knowing more about the health effects of Covid- 19 (pathological and mental) and preparing for such pandemic.

9. CONCLUSION:

This review compiles the health effects of Covid- 19 and discusses the mental and pathological aspects , thus people should follow the treatment options and preventive

measures to combat against such a pandemic, with proper social distancing, reduction of social panic and medical facilities the outbreak can be controlled. Continue to follow safety practices such as wearing a cloth face mask in public places. Because the virus spread from person to person, it's important to limit your contact with other people as much as possible.

ACKNOWLEDGEMENT:

The author extends gratitude to the institution of their support.

CONFLICT OF INTEREST:

The author declares that there was no conflict of interest in the present study.

10. REFERENCES:

- [1] Cui J, Li F, Shi Z-L. Origin and evolution of pathogenic coronaviruses. *Nat Rev Microbiol.* 2019 Mar;17(3):181–92.
- [2] Chiu C. Faculty Opinions recommendation of Identification of a novel coronavirus from a beluga whale by using a panviral microarray [Internet]. Faculty Opinions – Post-Publication Peer Review of the Biomedical Literature. 2008. Available from: <http://dx.doi.org/10.3410/f.1104509.560549>
- [3] Chen JP, Tanabe H, Li X-C, Thoms T, Okamura Y, Ueno K. Novel organic hole transport material with very high Tg for light-emitting diodes [Internet]. Vol. 132, *Synthetic Metals.* 2003. p. 173–6. Available from: [http://dx.doi.org/10.1016/s0379-6779\(02\)00203-5](http://dx.doi.org/10.1016/s0379-6779(02)00203-5)
- [4] Zhong N-S, Wong GWK. Epidemiology of severe acute respiratory syndrome (SARS): adults and children. *PaediatrRespir Rev.* 2004 Dec;5(4):270–4.
- [5] Zaki AM, van Boheemen S, Bestebroer TM, Osterhaus ADME, Fouchier RAM. Isolation of a novel coronavirus from a man with pneumonia in Saudi Arabia. *N Engl J Med.* 2012 Nov 8;367(19):1814–20.
- [6] Zhu N, Zhang D, Wang W, Li X, Yang B, Song J, et al. A Novel Coronavirus from Patients with Pneumonia in China, 2019. *N Engl J Med.* 2020 Feb 20;382(8):727–33.
- [7] Richman DD, Whitley RJ, Hayden FJ. *Clinical Virology* [Internet]. 2016. Available from: <http://dx.doi.org/10.1128/9781555819439>
- [8] Su S, Wong G, Shi W, Liu J, Lai ACK, Zhou J, et al. Epidemiology, Genetic Recombination, and Pathogenesis of Coronaviruses. *Trends Microbiol.* 2016 Jun;24(6):490–502.
- [9] Wilde AH de, de Wilde AH, Snijder EJ, Kikkert M, van Hemert MJ. Host Factors in Coronavirus Replication [Internet]. Roles of Host Gene and Non-coding RNA Expression in Virus Infection. 2017. p. 1–42. Available from: http://dx.doi.org/10.1007/82_2017_25
- [10] Li W, Moore MJ, Vasilieva N, Sui J, Wong SK, Berne MA, et al. Angiotensin-converting enzyme 2 is a functional receptor for the SARS coronavirus [Internet]. Vol. 426, *Nature.* 2003. p. 450–4. Available from: <http://dx.doi.org/10.1038/nature02145>
- [11] Samuel AR, Devi MG. Geographical distribution and occurrence of Endemic Goitre [Internet]. Vol. 8, *Research Journal of Pharmacy and Technology.* 2015. p. 973. Available from: <http://dx.doi.org/10.5958/0974-360x.2015.00162.6>
- [12] Baheerati MM, Gayatri Devi R. Obesity in relation to Infertility [Internet]. Vol. 11, *Research Journal of Pharmacy and Technology.* 2018. p. 3183. Available from: <http://dx.doi.org/10.5958/0974-360x.2018.00585.1>
- [13] Fathima F, Preetha P. EVALUATION OF THYROID FUNCTION TEST IN OBESE PATIENTS [Internet]. Vol. 9, *Asian Journal of Pharmaceutical and Clinical Research.*

2016. p. 353. Available from: <http://dx.doi.org/10.22159/ajpcr.2016.v9s3.12959>
- [14] Rj I, R GD. Role of environmental factors on sleep patterns of different age groups [Internet]. Vol. 9, Asian Journal of Pharmaceutical and Clinical Research. 2016. p. 124. Available from: <http://dx.doi.org/10.22159/ajpcr.2016.v9i6.13832>
- [15] Qian Z, Travanty EA, Oko L, Edeen K, Berglund A, Wang J, et al. Innate immune response of human alveolar type II cells infected with severe acute respiratory syndrome-coronavirus. *Am J Respir Cell Mol Biol*. 2013 Jun;48(6):742–8.
- [16] Baker DG. Natural Pathogens of Laboratory Animals: Their Effects on Research. Amer Society for Microbiology; 2003. 385 p.
- [17] Harsha L, Priya J, Shah KK, Reshmi B. Systemic Approach to Management of Neonatal Jaundice and Prevention of Kernicterus [Internet]. Vol. 8, Research Journal of Pharmacy and Technology. 2015. p. 1087. Available from: <http://dx.doi.org/10.5958/0974-360x.2015.00189.4>
- [18] Dave PH, Preetha. Pathogenesis and Novel Drug for Treatment of Asthma-A Review [Internet]. Vol. 9, Research Journal of Pharmacy and Technology. 2016. p. 1519. Available from: <http://dx.doi.org/10.5958/0974-360x.2016.00297.3>
- [19] Abigail, Abigail, Priya J, Devi G. Evaluation of Muscular Endurance among Dentists [Internet]. Vol. 10, Indian Journal of Public Health Research & Development. 2019. p. 258. Available from: <http://dx.doi.org/10.5958/0976-5506.2019.02808.0>
- [20] David, David, Jothi Priya A, Devi G. Physical Fitness among the Dental Physician, Dental Undergraduates and Postgraduates Students [Internet]. Vol. 10, Indian Journal of Public Health Research & Development. 2019. p. 223. Available from: <http://dx.doi.org/10.5958/0976-5506.2019.02801.8>
- [21] Shruthi M, Preetha S. Effect of Simple Tongue Exercises in Habitual Snorers [Internet]. Vol. 11, Research Journal of Pharmacy and Technology. 2018. p. 3614. Available from: <http://dx.doi.org/10.5958/0974-360x.2018.00665.0>
- [22] Choudhari S, Jothipriya MA. Non-alcoholic fatty liver disease [Internet]. Vol. 9, Research Journal of Pharmacy and Technology. 2016. p. 1782. Available from: <http://dx.doi.org/10.5958/0974-360x.2016.00360.7>
- [23] Iyer PK, Gayatri Devi R, Jothi Priya A. A Survey Study on Causes, Treatment and Prevention of Onychocryptosis [Internet]. Vol. 10, Indian Journal of Public Health Research & Development. 2019. p. 807. Available from: <http://dx.doi.org/10.5958/0976-5506.2019.01990.9>
- [24] R GD, Sethu G. EVALUATION OF ADENOIDS BY ORONASAL AND NASAL SPIROMETRY [Internet]. Vol. 11, Asian Journal of Pharmaceutical and Clinical Research. 2018. p. 272. Available from: <http://dx.doi.org/10.22159/ajpcr.2018.v11i10.27365>
- [25] Swathy S, Gowri Sethu V. Acupuncture and lower back pain [Internet]. Vol. 8, Research Journal of Pharmacy and Technology. 2015. p. 991. Available from: <http://dx.doi.org/10.5958/0974-360x.2015.00165.1>
- [26] Renuka S, Sethu G. Regeneration after Myocardial Infarction [Internet]. Vol. 8, Research Journal of Pharmacy and Technology. 2015. p. 738. Available from: <http://dx.doi.org/10.5958/0974-360x.2015.00117.1>
- [27] Timothy CN, Gayatri Devi R, Jothi Priya A. Evaluation of Peak Expiratory Flow Rate (PEFR) in Pet Owners [Internet]. Vol. 10, Indian Journal of Public Health Research & Development. 2019. p. 803. Available from: <http://dx.doi.org/10.5958/0976-5506.2019.01989.2>
- [28] Guo Y, Yuan C, Wei C. Emergency measures for acute oral mucosa diseases during the outbreak of COVID-19 [Internet]. *Oral Diseases*. 2020. Available from: <http://dx.doi.org/10.1111/odi.13350>