

COVID-19 in Young Adults: The Indian Scenario

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ABSTRACT

Coronavirus has impacted lifestyles of individuals around the world. Over the previous three weeks, India has experienced a massive surge in cases due to the continuing COVID-19 pandemic. As of 30th of April, India's 32 states and union territories have recorded a total of 33,610 confirmed cases and 1075 deaths. The virus developed in bats and was transferred to humans in Wuhan city of China, in December 2019 via an unnamed emissary species. Consumption or contacts with infected droplets are the modes of transmission. The virus in pulmonary secretions is detected with the help of sophisticated molecular assays, which allows for a diagnosis. Normal/less white cell counts, as well as high CRP, are common test results. Prior study has shown that the negative effects of the Coronavirus disease 2019 (COVID-19) pandemic may extend beyond economic problems and physical health concerns, causing severe psychological suffering in those who are quarantined. This pandemic is indistinguishably connected to the nation's economy as it is now gravely approached industrialized sectors because public all around the world is currently discreet about engaging in business in affected areas. The doctors and other health care personnel's are doing their duties completely and so is the government of India. For young population, and especially for susceptible youth, the SARS-CoV-2 catastrophe poses considerable risks in the field of education, employment, mental health and disposable income. It is very important on the part of citizens to maintain social distancing and follow proclamation strictly. The purpose of this review is to summarise the impact of pandemic COVID-19 on the Indian population's lifestyle choices.

Key words: COVID-19, Young adults

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INTRODUCTION

Over 6.9 million people have been impacted by the novel Coronavirus disease (COVID-19), with over 400000 deaths reported in more than 200 countries. In the absence of a specific treatment for COVID-19, the health care system's and experts' resilience is being tested. India has also been infected with the novel Coronavirus disease, with over 250 000 cases documented so far. India, whose population accounts to approximately 1.3 billion individual, has the potential to become the new COVID-19 epicentre. The WHO recently said that the "future of the epidemic would rely on how India tackles it" due to the country's high population density, low socioeconomic status, and lack of health care resources [1]. Various new viral illnesses have a significant impact on our health and prosperity. Virus outbreaks such as Ebola, SARS-CoV, MERS-CoV, Nipah, Zika virus, are proof of our catastrophe. H₁N₁ in 2009, polio in 2014, Ebola in West Africa in 2014, Zika in 2016, and Ebola in Congo are examples of epidemics that have had a significant impact on global life and World Health

Organization has declared it a serious health emergency of global significance. A new Coronavirus developed in Wuhan city of China, in December 2019 and quickly spread over the world [2]. On 30th January, 2020, the WHO proclaimed regarding COVID-19 pandemics. The COVID-19 was also brought into India *via* several overseas excursions, where it was handed out to the local community. On January 30, 2020, a student returning from Wuhan, China, was the first laboratory confirmed case of COVID-19. She was studying in Wuhan when she returned to Kerala, where she was brought to the hospital for treatment and quarantine before being released following a full recovery. COVID-19 mortality is nearly half that of the rest of the world in India. COVID-19 has now expanded across practically the entire Indian subcontinent. To prevent COVID-19 from spreading further, health workers, governments and the general public must act together on a national and global scale [3].

LITERATURE REVIEW

Virus and pathogenesis: COVID-19 virus belongs to wide genus of viruses that cause pulmonary and gastrointestinal diseases in human beings and other organisms alike. The virions are big, approximately 100-160 nm in diameter, spherical with an envelope. The

envelope protects a single stranded RNA genome with tremendous polarity encased inside a 27-32 kb capsid [4]. All COVID-19 viruses have several long glycoprotein S-spikes, tiny hemagglutinin spikes, some transmembrane glycoprotein, and envelope protein spikes [5,6]. Maximum of COVID-19 cases are linked to a local fish market in Wuhan, China, suggesting that the virus is animal originated. Man to man spread by droplets or by any contact, as well as hospital acquired, were suggested in some early local studies [7-10]. COVID-19 infection rates are quickly rising, owing to spread through carriers which are either with symptoms or without any symptoms, a high changeability rate and rapid global growth. Coronavirus has a great potential to become a pandemic agent due to its high transmission power and significant fatality rate [11-13]. Although the majority of Coronavirus cases in India have a history of travel to contaminated areas or come in direct contact with a contaminated person, nosocomial spread remains a question. Coronavirus will bind to the ACE-2 receptor, whereas MERS-CoV-2 uses the dipeptide peptidase 4 receptor both of which can be seen in heart, lungs, kidney, small intestine and other tissues [14-17]. It enters host cells by fusing the viral envelope with plasma membranes after engaging with a particular receptor. Viral genome RNA is released into the cytoplasm after entry and is translated in the poly-proteins [18]. Non-structural proteins are synthesised during translation which become the replication transcription complex in dual membrane vesicles [19]. The replication transcription complex is a continuous replicator that produces sub-setting series of sub-genomic mRNAs of positive strand viruses coding for structural proteins [20,21]. When recently produced genomic mRNA, nucleocapsid proteins, and envelope glycoproteins merge, virus particle buds are formed. At the end virus is discharged once the virion containing fluid filled lesions that coalesce with plasma membrane. Patients with severe infections may have aberrant coagulation parameters that can be linked to increased angiotensin converting enzyme-2 receptor expression in vascular endothelial cells. The viral phase, the cytokine storm, and the third phase, which includes ARDS, reduced cardiac function, and mortality, are the three phases of severe COVID-19 disease.

Indian perspective: The SARS-CoV-2 began in Kerala when 3 pupils came back to India from China. More than a hundred Coronavirus infections have been confirmed in India's different states as of 09 April 2020; the bulk of them have travelled to afflicted districts. Concurrently, On March 12th, 2020, the earliest death was recorded. The first casualty was a seventy six years old guy who had recently returned from Saudi Arabia. Coronavirus advances the infectivity rate, with one thousand infections on 28th of March and one thousand eight hundred and thirty four on April 1st, 2020, and a death toll of 41. Because India is world's 2nd most populous underdeveloped country having poor healthcare services, the number of instances is very low in comparison to other countries. More than two million people were screened, and 5734 of them tested affirmative for

Coronavirus by lab accepted tests, with 2.9% dying, 8.25% recovering, and five thousand and ninety five active positive cases that are hospitalized. The top 3 most impacted states were Maharashtra (1135), Tamilnadu (738) and Delhi (669). The World Health Organization statistics clearly shows that cooler, humid locations are more overburdened than warmer, drier places. Initial outbreaks in India began in areas with direct trade/travel links to the impacted area. According to experts, the number of COVID-19 instances may be higher; however India's diagnostic rates are extremely low in comparison to other nations. Educational institutions and a variety of business activities have been closed to prevent the virus from spreading throughout the community. Following that, the government imposed lockdowns in Coronavirus affected areas and large cities. On 24th March 2020, India's prime minister authorised a 21 day nationwide lockdown. The World Health Organization's chief executive director, Michael Ryan, appears to be pleased with India's efforts to regulate COVID-19. The SARS-CoV-2 is not only harmful to our health, but it also has a significant impact on the Indian economy. In the aftermath of the pandemic, Prime Minister Narendra modi ordered a Janta Curfew from 7 am to 9 pm on March 22, 2020. During the curfew, a substantial portion of the Indian populace loses their source of income as trade, commercial; tourist and other business activity are shut down.

Clinical symptoms: COVID-19's clinical signs are strikingly similar to those of influenza and other respiratory viruses. SARS-CoV-2 can have a wide range of clinical signs and severity. Three large scale trials in Wuhan, China, involving 278 patients, suggest that SARS-CoV-2 virus causes consolidation. Each and every individual was over the age of 18, with 172 men's and 106 women's making up the total [22-24]. Comorbidities such as cardiovascular disease, hypertension, diabetes, and patient age all play a role in illness outcome. An adult with no major comorbidities recovered quickly, whereas an elderly person with comorbidities, critical care with ventilator facility was necessary. Similar findings were made in Indian individuals as well. The individuals have an upper respiratory viral illness that is unexplained. By the end of the first week, consolidation, pulmonary failure and death may have developed in a small number of individuals. Pro-inflammatory cytokine (s) such as IL-2, IL-7, IL-10, and TNF alpha have all increased dramatically as a result of this development. High body temperature, cough, throat infection, stuffy nose, general discomfort and pain in head are common symptoms of an uncomplicated upper respiratory virus infection. Atypical symptoms can occur in the elderly and immune compromised. There are no indications of dehydration, infection, or shortness of breath in these patients. Atypical symptoms appear more common and severe in the patients who are old or have an impaired immune system. Although these patients do not have dehydration, sepsis, or shortness of breath [25]. The average stay in the hospital for those who recovered was ten days. The elderly and those with underlying comorbidities are

more likely to experience negative outcomes and die. Adult patients had a death rate ranging from 4%-11%.

Diagnosis: Anyone with a high body temperature, pharyngitis or cough with travel history to China or other locations having SARS-CoV-2 infected active patients, or who came into direct contact with patient having active COVID-19 virus infection is considered a suspected case. Cases can be without symptoms or sometimes may even go unnoticed. A case is considered as a confirmed case when it is not a suspected case and also it has an affirmative molecular testing. Molecular tests on pulmonary specimens like throat swab and nasopharyngeal swab are done to have a diagnosis of a specific case. In major cases the causative organism can be seen in stool specimens as well as in blood. It is essential to know that the COVID-19 virus is not yet included in existing multiplex Polymerase chain reaction panel. There are no commercialized tests available right now. If a suspicious case is discovered in India, the required sample must be sent to one of the country's recognised reference laboratories or the national institute of virology, Pune. Commercial tests will become accessible as the epidemic progresses. Other types of laboratory tests are frequently non-specific. In most of the cases, the WBC count is either less or normal. There could be lymphopenia; a lymphocyte count of less than 1000 has been linked to serious disease. In most cases, the number of platelets can be normal or slightly to the lesser side. C reactive protein and erythrocyte sedimentation rate values are generally high, whereas procalcitonin levels are usually adequate. Bacterial co-infection may point towards increased level of procalcitonin. Increased levels of alanine transaminase/ aspartate aminotransferase, PT, creatinine, D dimer, creatine phosphokinase, and lactate dehydrogenase are associated with major illness. The chest x-ray normally displays B/L infiltrates in early disease. The computed tomography imaging is more accurate and sensitive. Infiltrates, ground glass opacities, and sub-segmental consolidation are more a frequent sight on computed tomography scan. It's also abnormal in asymptomatic people or those who don't have any clinical signs of LRT involvement. In fact, aberrant computed tomography scans are generally utilized to identify SARS-CoV-2 in situations when molecular testing was negative; on repeat testing a number of individuals obtained affirmative molecular tests [26,27].

Differential diagnosis: The D/d incorporates every form of virus related disorders like influenza, parainfluenza, atypical organisms and bacterial infections. Clinically or with standard laboratory testing, SARS-CoV-2 cannot be separated from these infections. Therefore, the importance of travel history cannot be overstated.

DISCUSSION

Prevention and treatment: For any virus, an effective vaccination or antiviral could be the best solution. In the absence of these, the only option is to prevent. MERS, SARS, Nipah and Zika eruptions teach us that maintaining social distance, washing hands frequently and preventing

contact with animals and contaminated people will keep us safe [28,29]. SARS-CoV-2, like other pulmonary viruses, can be transmitted from a contaminated individual through droplets, infected parts of the body, secretions. Vulnerable person contracted the virus after coming into contact with these infected objects, amplifying the virus and spreading it to others. To limit viral transmission, the contaminated or uncertain individual should practise cough courtesy, maintain social distance, conceal coughs or sneezes with handkerchief or garments, clean both hands time and again and safely discard the infected material. To avoid nosocomial infections, hospitals, diagnostic laboratories, emergency casualties and different medical care facilities should obey conventional IPC policies [30]. Coronavirus care centres are situated in private hostels, hotels, stadiums and other areas around India. The backbone of the treatment is symptomatic and supportive. To avoid spread to other people, cases and doctors, priority is to provide appropriate quarantine. Low grade illnesses should be treated at home if the patient is aware of the danger signs and symptoms. Keeping nourishment with drinking enough water and ask to keep in check high temperature and cough, are the normal guiding principles. Antibiotics and antivirals should not be used on a regular basis in confirmed instances. To give O₂ to hypoxic patients, nasal prongs, a face mask, a high flow nasal cannula are indicated. Mechanical ventilation, and additional corporeal membranous O₂ support, is necessary. Some individuals may require renal replacement therapy. Antibiotics and antifungals medications will be required if co-infections are detected or confirmed [27-36]. The international outpouring of support is overwhelming. There were strong travel restrictions to China at first and anyone going to or removed from China was screened and kept under isolation and all his clinical symptoms were observed and then Coronavirus tests were performed, irrespective of them being symptomatic. None the less, because of the virus's rapid global spread, these travel prohibitions have recently been extended to additional countries. It's unclear if these measures will result in a reduction in viral spread.

Response to COVID-19 by India: India has reacted quickly to the new hazard. Since March 25, international boundaries are closed and a nationwide solitary has been implemented. According to the Oxford COVID-19 government response tracker, response by India is among the world's most strict, outperforming the US, Germany, Italy, and the UK [37]. ICMR previously estimated that rigorous social distance would cut total patients by sixty two percentage and peak cases by eighty nine percentages [38]. In India, Coronavirus testing rates have risen dramatically [39]. COVID-19 has been evaluated in 4 916 116 samples as of 9th June, 2020 [40]. The ICMR has validated and authorised 17 RT-PCR kits for use in India thus far [41]. Surveillance PUR posture is also carried out using rapid antibody test kits. Testing has been expanded across the country, with 553 government and 231 private facilities participating [42]. The ICMR has recommended utilization of alternative screening

tests such as cartridge based nucleic acid amplification test with Cepheid expert Xpress Coronavirus as part of the COVID-19 testing approach [43,44]. The Government of India has set up around six hundred Coronavirus particular health care services across the country, with the railways of India converting 375 carriages into isolation rooms as a backup. Through print, television and social media, every effort is being taken to raise awareness of COVID-19 and its prevention [45-49].

CONCLUSION

The number of COVID-19 cases in India is currently increasing at an alarming rate. Although the state wide lockdown has slowed the spread of COVID-19, India's ever growing community, extraordinarily more populace density and terrible socio demographic conditions that are important obstacles in the country's fight against the virus. Meanwhile, new outbreaks of Zoonotic viruses and diseases are predicted to happen. As a result, additionally to containing present pandemic, efforts should be undertaken to develop comprehensive strategies to prevent future zoonotic outbreaks. The Indian government and health care providers have worked tirelessly to achieve their goals. Furthermore, university based counselling services should give special attention to young adults who have limited social support systems and a lack of tenacity. Citizens must also contribute to the fight against the epidemic by following official containment and social distancing advice.

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