Second Wave of COVID-19 in India

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ABSTRACT

COVID Pandemic is a challenge but we, the Healthcare Professionals proved that we are good in the need of the hour in learning from each other and enabling society to protect both lives and livelihood. We are quite confident that anything is possible when we have the right people to associate and support us. These are times when we must take care of each other, our families and our society more than ever. This shall help us to create a positive atmosphere in these gloomy times.

COVID-19 pandemic First Wave affected the most vulnerable sections of the population i.e. the old, sick and the immune-compromised. The Second Wave started when the infection started spreading into the general population, who may not have got the infection during the first wave and do not have protective antibodies against the virus. Experts have warned that a Third Wave of the COVID-19 Pandemic is inevitable, given the highest levels of circulating virus in India, but it is not clear on what timescale this 3rd Wave will occur. In third wave, the most vulnerable group would be the children as all adults are now being vaccinated on priority. Still we do not have the authorisation to vaccinate persons under 18 years of age. This could probably pose a problem later, as children are a big unexposed group for the virus.

There is no single response to defeat the COVID-19 pandemic. Advance planning and preparation can help to avoid a repetition of the tragic circumstances caused by the second wave. We must be prepared for 3rd wave & remain optimistic about the whole situation. If we are not over prepared, 3rd wave will be more devastating to the lives & livelihood. Transparency in data collection and it’s collation, accelerating vaccination and transparency in vaccine deployment, setting up more COVID facilities with beds, oxygen supplies and staff, decentralization and equitable distribution of Medical aid and expanding & empowering rural infrastructure will go a long way in meeting this challenge. Continue investing in health as we move ahead, as Health Care investment have a compelling self-interest. We need to create our own robust Healthcare infrastructure with an effective health care delivery system, which is much more agile, accessible, comprehensive, compassionate and responsible for health promotion, prevention of illness, detection and treatment of disease and rehabilitation.

Keywords: COVID-19 pandemic, Vulnerable, Vaccination, Mutation, Effective isolation, Contact tracing

Introduction

COVID-19 hitting way too close to every one’s home. Now the COVID-19 pandemic situation in India is really a cause of concern for every one of us, because of these fast spreading strains of the virus. With more than half million active COVID-19 cases & more than 50 thousand daily new cases, it is like an explosion if we are not taking all due precautions to protect ourselves from this virus.

The Concept of ‘Second Wave’ reflected more of the laxity among everyone, regarding COVID appropriate behaviour and COVID containment and management strategy at the ground level.

We are in one of the most crucial make or break times. We need to address the confusion in public that if I am vaccinated, I will not get COVID-19 infection. Whether you have taken one dose or two doses of COVID vaccinations, you can still get COVID-19 infection. Only protection from COVID vaccination is that, the severity of infection will be less, and you may not need hospitalization.

The most striking feature of India’s second wave of infections has been the speed at which the numbers have been growing.

The other remarkable feature of the second wave is the high concentration of cases in a few states.
The facilities built last year, and the experience in dealing with a surge, has had a role to play, but all evidence has also been suggesting that the infections in the second wave have been resulting in relatively milder form of the disease. But this situation is likely to change soon with rise in number of new cases.

Although at present the deaths reported are marginally low but as the number of new cases increases, more & more elderly and people with co-morbidities get infected, it may lead to higher mortalities due to COVID.

With more and more people getting vaccinated, and a large proportion having already been infected, the expectation is that the second wave would last for a shorter period than the first. What is also possible is that different states might peak at different times & COVID-19 becomes endemic in India.

**Catastrophic 2nd COVID Wave in India**

The COVID-19 pandemic second wave has been unforgiving in its velocity and its fierceness.1 We still have not been able to cope with what is happening today. What is more worrying is the silent spread of this virus in the rural and peri-urban areas. Although there is reduction in number of new COVID-19 cases in last two weeks, we need to understand that the COVID-19 Pandemic is far from over. In India we are underestimating the scale of this viral infection and this has already been indicated by the serosurveys conducted in India.

In India this current second wave of COVID-19 infections has reported about 4 Lakh cases per day and around 4000 daily deaths. Hospitals were overflowing with patients; there was shortage of oxygen beds and ICU Beds, exhausted medical staff, shortage of medical oxygen supply, non-availability of drugs and new complications of COVID-19 in the form of Mucormycosis. We need to find a way out of this current situation. We still can’t say that we are done with it yet. We need to be very clear about the principles of control and must not be reluctant and complacent about applying them. It requires a concerted effort to implement this rigorously.

**Role of Virus Variants/Mutants of Interest in India**

As India is struggling to contain its 2nd wave, we have these fresh virus variants, double mutant strains classified as mutants of interest in India, creating a fresh panic right now. We need to understand that normally RNA viruses evolve slowly, but now since this virus is so much spread out & is replicating in large number of active cases, it is almost inevitable that if we allow it to continue to replicate like this. Otherwise we are likely to see new variants coming at us very fast. The only way to prevent and slow down the variants is by slowing multiplication of the virus, as viral mutations are directly proportional to the transmission of virus. More we allow the virus to transit, more new variants will arise which may be resistant to current treatment strategies.

**Viral Mutations (Genomic Variants)**

During this second wave of COVID, mutant strains of virus are spreading very fast. Viral Mutations are a natural phenomenon and are found in almost all countries.5-6% of mutations are considered, a normal process in the lifecycle of a virus. But when these mutations impact public health and increase transmission or severity of the disease, it is a cause of concern.

SARS-COV-2 variants detected in the community have been prevalent since last 6-8 months.2 771 variants of concerns (VOCs) have been detected in a total of 10787 positive samples of international travellers shared by States/UTs. These include 736 samples positive for viruses of the UK, 34 of South Africa & 1 sample was found positive for viruses of the Brazilian variant.

These variants are linked to this transmission and has been found to increase the transmission potential of this virus. The analysis of samples from Maharashtra has revealed double mutant variants. Such mutations are associated with increased infectivity.

These variants of concerns, which are much more infectious (2-6 times than the original Wuhan strain) are now circulating in India. Additionally, new local variants of concerns specific to India have been detected.

All the above mutated strains circulating in India now make the virus much more dangerous. The mutations, in addition to significantly increased transmissibility, help the virus escape our immune system, meaning that many who have been previously infected or vaccinated “might” get re-infected.

Since virus mutates during transmission due to replication, we need to check the transmission of the virus and suppress the chain of transmission to prevent mutations. This we can only do by practicing COVID appropriate behaviours of wearing masks, physical distancing & sanitization, increase testing, contact tracing & isolation of suspected cases.
Although Variants of Concerns (VOCs) and a New Double Mutant Variant have been found in India, these have not been detected in numbers sufficient to either establish or direct relationship or explain the rapid increase in cases in some states. Genomic Sequencing and Epidemiological Studies are continuing to further analyze the situation.

Main cause of surge in new COVID-19 cases is the pooling of susceptible population. In geographical areas where this pool of population is large, there will be a surge in new COVID-19 cases, when this virus encounters this population and when this population lowers their guards of COVID appropriate behaviors due to COVID fatigue.

The Delta variant of Covid-19, first identified in India, has been detected in 74 countries and continues to spread rapidly amid fears that it is poised to become the dominant strain worldwide.

Outbreaks of the Delta variant have been confirmed in China, the US, Africa, Scandinavia and Pacific rim countries. Scientists report that it appears to be more transmissible, as well as to cause more serious illness. Research in China, mirroring in broad terms that in the UK where the Delta variant has become dominant, has also found the strain appears to be somewhat more resistant to vaccines, in particular a single dose.

Managing Surge in Cases in India

Public Health Measures of ensuring COVID appropriate behaviors, testing, treating, isolation, and COVID-19 vaccine are the same for all types of viral mutant variants. It is ultimately the containment, which limits the virus & prevents further mutations while treatment remains the same for these new strains.

All what is required is breaking the chain of viral transmission by our COVID appropriate behaviors as the virus mutates.

A Five-Fold Strategy is Laid Out for Adoption by the States for Effective Containment and Management of the COVID Pandemic:

1. Exponential Increase in Testing

The States were strongly advised for a significant increase of testing in all districts in line with their Positivity Rate, with increased share of RT PCR tests, to a ratio of more than 70% of total. Rapid Antigen Test (RAT) to be mostly deployed as a screening tool in flushing out cluster cases from densely populated areas.

2. Effective Isolation and Contact Tracing of Those Infected

Testing leading to detection of positive cases is to be followed with prompt tracing of the close contacted and swift isolation. It was advised that an average of 30 close contacts are to be traced, tested, and isolated in the first 72 hours.

3. Re-Invigoration of Public and Private Healthcare Resources

We need to strengthen public and private hospital infrastructure and reenergise the Healthcare workers for removal of complacency and fatigue.

4. Ensuring of COVID Appropriate Behaviour (CAB)

Renewed attention to be paid to ensuring of ‘COVID appropriate behaviour’ CAB in crowded place like markets, inter-state bus stands, schools, colleges, railway stations etc. 70% of the cases can be controlled by adherence to CAB alone.

5. Targeted Approach to Vaccination in Districts Reporting Large Numbers

States have been asked to achieve 100% vaccination coverage of those 45 & above 45 years of age in next two weeks, in the 3rd phase of COVID-19 vaccination, starting from 1st of April 2021.

Recent Developments Regarding COVID-19 Vaccination Drive in India

Till date more than 63 million eligible Indian beneficiaries have been vaccinated for COVID-19 with indigenously developed COVISHIELD & COVAXIN.

1. In view of the emerging scientific evidence which revealed that protection from SARS-COV-2 infection is enhanced if the second dose of COVISHIELD is administered 6-8 weeks after the first dose and not later than the stipulated period of 8 weeks National Technical Advisory Group on vaccination (NTYAGI) & National Expert Group on Vaccine Administration for COVID-19 (NEGVAC) revised their recommendations to provide 2nd dose of COVISHIELD at 4-8 weeks interval, instead of earlier practiced interval of 5-6 weeks.

This is applicable only to COVISHIELD & not to COVAXIN. We all need to widely disseminate this message of revised dosing of COVISHIELD to all eligible recipients of COVISHIELD & ensure adherence of revised dosing interval.
2. Keeping in view the assured availability of COVID vaccines in India and smooth performance of vaccine administration systems, SOPs for vaccination COWIN platform functioning seamlessly and is very robust, from 1st April onwards all Indian citizens 45yrs & more of age are eligible for COVID-19 vaccination. Earlier condition of co-morbidities has been removed from the criteria.

This decision has been taken by NEGVAC considering the scientific evidences that 88% of total COVID19 attributed deaths in India are taking place in the age group 45 years & above & Case Fatality Rate is more than 2.85% which is almost double of the National Case Fatality Rate in India. So, this group is the most vulnerable population group & needs to be protected first by COVID-19 vaccination.

**Special Precautions That Needs to be Taken During This Second Wave Of Pandemic:**

Basic challenge at present is to break the chain of transmission by improving our COVID appropriate behaviours. Hence, we need to

1. Avoid crowded place.
2. Avoid unnecessary travel.
3. Wear double masks while travelling in public transport.
4. Keep wearing your mask in public places
5. Living rooms must be well ventilated
7. Avoid unmasking situations like eating in restaurants
8. Give prompt attention to your symptoms and get tested & treated as soon as possible
9. At home Self-Health monitoring is a must. Regularly monitor your
   Temperature
   Oxygen saturation
   Respiratory rate
   Blood pressure if you are hypertensive
   Blood Sugar if you are diabetic
10. Do six-minute walk test to check any dip in oxygen saturation
11. Take Vitamin C, vitamin D & Zinc
12. Drink lots of water & keep yourself hydrated
13. Do saline gargles 2-3 times every day

Digital Health care & Tele health has changed the way we think over it and we have been able to manage patients even at remote locations.

We can easily handle this situation and break the chain of transmission. COVID pandemic is predictably unpredictable and it’s a learning curve. But now we understand the pandemic better.

The key to sustain the gains of last one year of hardship:

i. Early recognition of symptoms
ii. Early testing & isolation
iii. Contact tracing
iv. Effective Home isolation
v. Effective supportive care

**Peltzman Effect**

Peltzman Effect has been termed after Sam Peltzman, an economist at the University of Chicago, who first described it in 1975. According to the theory, when safety measures are mandated, people’s perception of risk decreases, making them take riskier decisions.

An increasing number of people, including doctors, are testing positive from the Covid-19 infections even after taking both doses of vaccinated. The reason could be an increase in the risk-taking behaviour, prompted by the rollout of vaccines against the deadly virus, better understood as the “Peltzman Effect”.

Peltzman postulated about mandating the use of seatbelts in automobiles, leading to more accidents. It implies that safety perception increases risk appetite. In other terms, people become more careful when they sense greater risk and less careful if they feel more protected, according to his theory.

Similarly, in the case of Covid-19, vaccines are giving a sense of security, leading to increased risky behaviour, that is low adherence to preventive measures - mask usage, social distancing and hand sanitisation.

While it is a known fact that vaccines neither give immediate protection or full protection (against infection as against death), the sense of security unfortunately starts much earlier, even before the actual injection: people wear masks with less caution, do not
maintain distance as soon as they reach vaccination centres — the Peltzman effect.

The increase in the number of people being innoculated gives rise to a “misplaced sense of security in ‘herd immunity’ long before widespread immunity is truly present,” said doctors from New York University’s Langone Health in a comprehensive review of the Peltzman Effect, published in the ACP Journals on March 2.

As a result “…the very optimism that is necessary to encourage widespread acceptance of the vaccine will undoubtedly contribute to the overconfidence” and lead people to forgo the preventive measures.

“Consciously or not, even those who have not received a Covid-19 vaccine may forgo masks and social distancing if they know that others are receiving the vaccine,” the doctors added.

Although pandemic fatigue is a reason for low adherence to preventive measures, the Peltzman effect cannot be ignored. The theory is also evident in the drastic decline in the usage of PPE kits by the healthcare workers.

This risk-taking behaviour can be dangerous for general public. But for a health care worker dealing directly with Covid-19 patients, it can prove detrimental and impair the health care services, as is seen in the recent report of 37 doctors in a Delhi hospital testing positive even after taking both doses. The doctors, reportedly, got infected while attending to Covid-19 patients at the hospital.

**Covid Virus reinfection**

ICMR study found that out of the 1,300 cases of reinfection in the country, only 58 of them could be truly classified as cases of reinfection.

**Criteria for labelling reinfection**

1. the reinfection taken place more than 3 months 102 days after the recovery from first illness.
2. the patients should also test negative in-between during the 102 days.
3. only way to confirm actual re-infection is by genome analysis of the virus sample. Since the virus mutates continuously, the genome samples in re-infection would also show some differences. But Genome sampling cannot be undertaken in every case as it is a very complex process that takes both intense efforts and time.

**Reinfection vs Persistent viral shedding**

Persistent viral shedding” means that low levels of Corona virus continued to exist in body after recovering from the disease for up to three months. The levels of virus are so low that it is neither sufficient to make the patient feel sick or transmit the disease. However, even the low levels of virus can get traced in the RTPCR and the report may turn out to be positive for the second time. ICMR conclusion: permanent immunity among people who have got infected with the virus cannot be assumed 

If the finding can be extrapolated to immunity following Vaccination too. It Leaves no room for complacency or pandemic fatigue.

Though the incidence of re infection might be low but it emphasizes the continued importance of Covid Appropriate behaviour.

**Conclusion**

- Corona is not a lung disease, a systemic Thrombo – hyper inflammatory vasculitis disease.
- The virus is non replicating after 9.
- The loss of smell is the symptom equal to RTpcr tests.
- 15 minutes the time to get the infection.
- Change your careless mindset and attitude war footing steps are required as this is spreading fast.
- Zero tolerance for no mask, crowding & COVID inappropriate behaviour.
- Testing, tracing, treating and vaccinating.

**End Note**

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**Conflict of Interest:** None declared

**Disclaimer:** The information shared, is solely intended, for the benefit of young industrial physicians & is contributed from the archives of what we have learnt from the views, thoughts, and opinions expressed by our great teachers.

Any updates in the present context may please be verified
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