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Editorial

Containing COVID-19 second surge in India

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One of the smallest accidental wildlife RNA viruses has spiraled and disrupted planet earth. Current COVID-19 now has three definitions, one is the new-onset COVID-19, second is reinfection of COVID-19, and third is post-vaccine COVID. Each of this subtype will have better data this year. Unfortunately, after our first wave with multiple peaks which varied according to time, mobility, population density, and migration argumentative Indians still want to rebel against the virus. It's time we all come together as "One India, One World" to fight the sinister ravages of this smart tricky ever changing RNA virus (which is slow mutating compared to its other flu counterparts) but leaves a bad aftermath. Clearly once our first wave abated everyone thought that COVID-19 has departed and we faltered by lack of masking and adherence to COVID appropriate behavior. This was boosted by further pseudoconfidence due to lower number of cases and case fatalities; large gatherings suddenly sprung up with vaccine around people got carried away. COVID-19 virus battle is much more in the mind than in the body. It's a resilient, strong, strict, and firm mindset which is needed, not a rebellious, revengeful, reckless, and careless one. Fatigue cannot be an excuse neither can be self-confidence for our failure to not strict to masking. India has enough masks which is still the strongest vaccine independent of variants of concerns which may emerge.[1]

SARS-CoV-2 has more than 30,000 nucleotides and as the virus spreads from host to host some bases may change. Simply changes in 20–25 plus bases can yield more than trillion possible variants and some new strains can appear. The second surge started very subtly from small less exposed population clusters in some districts such as Amravati, Akola, and Yavatmal from Maharashtra and some from Kerala from where it's rapidly spread to rest of India. Clearly in the second wave, we are seeing a faster transmissible strain, possibly less virulent now but still its work in progress for genomic scientists and public health experts to delineate if it is an imported strain such as the UK, South African, or Brazilian one or is a home grown mutant. The initial data suggested *E484Q* strain but later NCDC, NCCS, and CSIR ICMR identified a double mutant strain of *E484Q* and *L454R* strains. It is public health policing which will still be the same but due its rapid spread, possible evasion of RT PCR testing or immune escape it can have serious implications in the long run and we need to generate some high-quality science to understand this. Worldwide, more than a million sequences have been done and some have been designated as "Variants of concern." CDC classifies them as B.1.1.7 (British), P.1 (Brazil), B.351 (South African), American (California, New York), and Indian (B.1.617). SARS-CoV-2 variants bring concerns for increased spread and escape from both vaccine and natural infections immunity. Various factors driving SARS-CoV-2 variant evolution, include specific mutations, examine the risk of further mutations, and consider the experimental studies needed to understand the threat these variants pose. Plante *et al*. examined SARS-CoV-2 variants including B.1.1.7 (UK), B.1.351 (RSA), P.1 (Brazil), and B.1.429 (California).[2] Each of

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these has mutation especially in the viruses spike protein which is the prime target of the vaccine. Some mutations can enhance virulence to make it more invasive as well as severity. Most have till date not been documented linked to severity but possible links with transmissibility cannot be ruled out. The L452R mutant which is possibly the mutant from Maharashtra will bind better affinity to the receptor, increase viral replications, and escape presentation of an immunodominat epitope HLA-A 24:02 making it one of the few variants which can escape T-cell immunity.[3]

The current second wave pattern shows a large clusters of invisible suspect or asymptomatic COVID-19 cases which are in the community which need to be contained from spreading. Older age, male sex, and comorbidities increase the risk for severe disease. The symptoms of fever, dry cough, and breathlessness are still very much around but lack of small or taste, diarrhea, and others have crept up. COVID-19 changing colors and unpredicted nature makes is difficult for recognition of red flags for determining deterioration. The simplest and easiest test for that is to measure the oxygen saturation on a simple pulse oximeter and after 6 min walk record the reading, if its below 94% or a fall of 3% you need to contact a health-care facility and provider to seek oxygen, steroid, and supervised care.[4] Active symptomatic support remains the key treatment for mildly to moderately ill patients, such as maintaining hydration, nutrition, and controlling fever and cough. Most asymptomatic cases or mild cases need to be vigilant especially in the 2nd week as they suddenly get this "happy" hypoxia and worsen.[5] Current strain and surge is seeing more thrombotic complications as well as cases of delayed cytokine storm low-molecular-weight heparin, aspirin, and novel oral anticoagulants: Dabigatran, rivaroxaban, apixaban, and edoxaban may help.[6] For people hospitalized with COVID-19, 15–30% will go on to develop COVID-19-associated acute respiratory distress syndrome (CARDS). When used appropriately, high-flow nasal cannula may allow CARDS patients to avoid intubation and does not increase risk for disease transmission**.** In hospitalized for severe COVID-19, but not critical (hypoxemic needing low flow supplemental oxygen): Corticosteroids (dexamethasone 6 mg/day × 10 days or until discharge or an equivalent dose of hydrocortisone or methylprednisolone).[7] Dexamethasone treatment improves mortality for the treatment of severe and critical COVID-19. Beyond steroid, we will need to use monoclonals such as itolizumab or tocilizumab both can work to mitigate the cytokine storm and many other drugs.[7]

Our current focus is on saving lives. Our health-care facilities need to triage the most deserving cases and avoid asymptomatic or mild symptomatic cases in hospitals so we can have beds for most deserving cases. COVID-19 care is about close monitoring, right timing of the right medicine, and prone position with breathing exercises including pranayama, oxygen, and steroid in the moderate-to-severe cases under supervision. Many treatments such as remdesivir, plasma, or other either do not work or at best improve recovery by a day or two but do not save lives in this ever-changing evidence in COVID-19. Every COVID-19 case should remember it's a 2-week time table not one and be rested for at least 2–3 weeks based on medical advice. We have unfortunately information overload often which is not peer-reviewed and misleading. Simple lifestyle measures such as eating on time, eating slowly, eating right with exercises, adequate sleep, and positive thinking contribute immensely to COVID-19 recovery. In pandemic times, we need to use our resources judiciously as our laboratories and radiology systems are overwhelmed just like hospitals and staff, so test under appropriate advice and do not panic on reports but take prudent action under advice. Timing is crucial so that there is no delay in red flagging the serious cases.[1]

Vaccine is the new mantra after the COVID appropriate behavior of mask, distancing, and sanitizing as the fourth pillar. The vaccine primary goal is to protect the most vulnerable from death and severe diseases. These are all first-generation rapidly developed vaccines which are all in research mode. All vaccines are safe and except a few contraindications like anaphylaxis or others. India is the vaccine pharmacy of the world and has developed some high-quality vaccines which are home grown some yet to be available. India led the world in polio and small pox and will do so in COVID-19 too we should be proud of Indian science and their teams which have made this possible. India is part of the global alliance for vaccine and needs to be congratulated for rising above vaccine nationalism by exporting vaccine fulfilling its global obligations. We need to vaccinate all our vulnerable groups which can succumb to COVID-19 independent of the age but must follow vaccine discipline. Our vaccine approach is calibrated, digitalized through "Co-win" but soon will be more open and inclusive. Current focus is to save lives of the most vulnerable. We may need to adopt innovate strategies to vaccinate like using family doctors or pediatrician's clinic or mobile vans or vaccine camps as well as avoid wastage by including some exceptions in a mindful way. Vaccines confer protection from disease but not necessarily infection, so post-vaccine even after full doses we need to mask, avoid crowds or poorly ventilated spaces, distance, and sanitize. Post-vaccine COVID-19 needs investigation to study the phenomenon of immune escape or efficacy also the severity of the disease and phenotype of post-vaccine COVID-19 needs to be studied. We should never unmask while speaking, when eating try to avoid public spaces in crowds but eat in safe zone and ensure that we do not unmask as much as possible. We need to use safer masking strategies such as doubling up, using mask braces, ensure its tight, and well covered. There has to be zero tolerance for violators of COVID norms, behavior, and protocols and we need to have a single-minded determination to conquer and decontaminate this nasty virus. We need to be proactive to clear the virus from our environment using mind and body strategies and build a strong COVID-free India.[1]

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