



DAILY NEWS BULLETIN

LEADING HEALTH, POPULATION AND FAMILY WELFARE STORIES OF THE DAY

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Human augmentation

The future is cyborg: Kaspersky study finds support for human augmentation (The Tribune: 2020918)

<https://www.tribuneindia.com/news/health/the-future-is-cyborg-kaspersky-study-finds-support-for-human-augmentation-142489>

Research survey showed that 63% of people would consider augmenting their bodies to improve them

The future is cyborg: Kaspersky study finds support for human augmentation
Photo for representational purpose only.

Nearly two thirds of people in leading Western European countries would consider augmenting the human body with technology to improve their lives, mostly to improve health, according to research commissioned by Kaspersky

As humanity journeys further into a technological revolution that its leaders say will change every aspect of our lives, opportunities abound to transform the ways our bodies operate from guarding against cancer to turbo-charging the brain.

The Opinium Research survey of 14,500 people in 16 countries, including Britain, Germany, France, Italy and Spain, showed that 63% of people would consider augmenting their bodies to improve them, though the results varied across Europe.

In Britain, France and Switzerland, support for augmentation was low -- at just 25%, 32% and 36% respectively - while in Portugal and Spain it was much higher -- at 60% in both.

"Human augmentation is one of the most significant technology trends today," said Marco Preuss, European director of global research and analysis at Kaspersky, a Moscow-based cybersecurity firm.

"Augmentation enthusiasts are already testing the limits of what's possible, but we need commonly agreed standards to ensure augmentation reaches its full potential while minimising the risks," Preuss said.

Billionaire entrepreneur Elon Musk's neuroscience startup Neuralink last month unveiled a pig named Gertrude that has had a coin-sized computer chip in its brain for two months, showing off an early step toward the goal of curing human diseases with the same type of implant.

The survey found that most people wanted any human augmentation to work for the good of humanity, though there were concerns that it would be dangerous for society and open to exploitation by hackers.

The survey showed the majority of people felt that only the rich would be able to get access to human augmentation technology. Reuters

Antibody treatment

Antibody treatment may reduce Covid hospitalisation risk (The Tribune: 2020918)

<https://www.tribuneindia.com/news/health/antibody-treatment-may-reduce-covid-hospitalisation-risk-142486>

Clinical trial enrolled mild-to-moderate recently diagnosed Covid-19 patients across four groups

Raising hope of Covid-19 treatment at an early stage, an antibody therapy has been found to quickly reduce SARS-CoV-2 viral load in newly infected patients and cut hospitalisation risk, US-based pharmaceutical company Eli Lilly said, while revealing interim results of a clinical trial.

The Phase 2 study of the BLAZE-1 clinical trial evaluated LY-CoV555, a SARS-CoV-2 neutralising antibody, for the treatment of symptomatic Covid-19 in the outpatient setting, the company said on Wednesday.

The trial enrolled mild-to-moderate recently diagnosed Covid-19 patients across four groups - -placebo, 700 mg, 2800 mg, and 7000 mg.

Analyses of viral data demonstrated that LY-CoV555 improved viral clearance at an earlier time point -- day 3 -- and reduced the proportion of patients with persistently high viral load at later time points.

Most study hospitalisations occurred in patients with underlying risk factors -- age or body mass index (BMI) -- suggesting a more pronounced treatment effect for patients in these higher-risk groups.

Ongoing studies will seek to confirm this finding, the drugmaker said.

Across all treatment groups, including placebo, no patients progressed to mechanical ventilation or died, the results showed.

Exploratory analyses indicated a more rapid improvement in symptoms for patients treated with LY-CoV555 versus placebo, supporting the hospitalisation effect.

The treatment was well-tolerated, with no drug-related serious adverse events reported.

"These interim data from the BLAZE-1 trial suggest that LY-CoV555, an antibody specifically directed against SARS-CoV-2, has a direct antiviral effect and may reduce Covid-related hospitalisations," Daniel Skovronsky, Lilly's chief scientific officer and president of Lilly Research Laboratories, said in a statement.

"The results reinforce our conviction that neutralising antibodies can help in the fight against Covid-19." The company said it intends to quickly publish the results of this interim analysis in a peer-reviewed journal and discuss appropriate next steps with global regulators.

If proved to be effective in further analyses, this could be the first potential treatment for Covid-19 patients with mild and moderate level of severity.

This is because the drug remdesivir and the steroid dexamethasone have been found to be helpful in treatment of patients with serious illness.

The BLAZE-1 clinical trial remains ongoing, testing LY-CoV555 in combination with a second Lilly antibody, LY-CoV016, which binds a different epitope in the SARS-CoV-2 spike region. The trial is currently enrolling a larger, confirmatory cohort of higher risk patients, testing the ability of the antibody combination to reduce the number of patients with persistently high viral load and reduce Covid-related hospitalisations. — IANS

Immune system's T cells

Immune system's T cells play bigger role in reducing COVID-19 severity (The Tribune: 2020918)

<https://www.tribuneindia.com/news/health/immune-systems-t-cells-play-bigger-role-in-reducing-covid-19-severity-142481>

Weak or uncoordinated immunity may lead to poor disease outcome, says study

Immune system's T cells play bigger role in reducing COVID-19 severity

Vaccine candidates for COVID-19 should elicit a broad immune response that includes antibodies, and the body's helper and killer T cells, according to a study which says weak or uncoordinated immunity may lead to a poor disease outcome.

The research, published in the journal *Cell*, confirms that a multi-layered, virus-specific immune response is important for controlling the novel coronavirus during the acute phase of the infection and reducing COVID-19 disease severity.

“Our observations could also explain why older COVID-19 patients are much more vulnerable to the disease,” said study senior author Shane Crotty from the La Jolla Institute for Immunology in the US.

“With increasing age, the reservoir of T cells that can be activated against a specific virus declines and the body’s immune response becomes less coordinated, which looks to be one factor making older people drastically more susceptible to severe or fatal COVID-19,” Crotty said.

In the research, the scientists collected blood samples from 50 COVID-19 patients, and analysed multiple branches of their immune system—novel coronavirus specific antibodies, helper and killer T cells.

“It was particularly important to us to capture the whole range of disease manifestation from mild to critically ill so we could identify differentiating immunological factors,” said study co-author and infectious disease specialist Sydney Ramirez.

The researchers found that all fully recovered individuals had measurable antibody, helper and killer T cell responses against the novel coronavirus SARS-CoV-2.

However, they said the response varied widely in acute COVID-19 patients, with some lacking neutralising antibodies, others helper or killer T cells or any combination thereof.

“When we looked at a combination of all of our data across all 111 measured parameters we found that in general, people who mounted a broader and well-coordinated adaptive response tended to do better,” said Carolyn Moderbacher, another co-author of the study from La Jolla Institute for Immunology.

“A strong SARS-CoV-2 specific T cell response, in particular, was predictive of milder disease. Individuals whose immune response was less coordinated tended to have poorer outcomes,” Moderbacher said.

The scientists found that the effect was magnified when they broke down the dataset by age.

“People over the age of 65 were much more likely to have poor T cell responses, and a poorly coordinated immune response, and thus have much more severe or fatal COVID-19,” Crotty said.

The scientists explained that as people age, the immune system’s supply of deployable immature T cells dwindles, with fewer cells available to be activated to respond to a new virus.

“This could either lead to a delayed adaptive immune response that is unable to control a virus until it is too late to limit disease severity or the magnitude of the response is insufficient,” Moderbacher said.

The scientists believe T cells, and helper T cells in particular, are associated with better protective immune responses.

“This was perplexing to many people, but controlling a primary infection is not the same as vaccine-induced immunity, where the adaptive immune system is ready to pounce at time zero,” Crotty said.

“Thus, these findings indicate it is plausible T cells are more important in natural SARS-CoV-2 infection, and antibodies more important in a COVID-19 vaccine,” he said. PTI

WHO

WHO warns of coronavirus momentum as winter looms in north (The Tribune: 2020918)

<https://www.tribuneindia.com/news/health/who-warns-of-coronavirus-momentum-as-winter-looms-in-north-142115>

Expert advises people at high risk for COVID-19 infections to get flu vaccination

WHO warns of coronavirus momentum as winter looms in north

A "COVID-19 Supply Tent" is seen at Cornell University, New York, Reuters

The World Health Organisation warned on Wednesday that COVID-19, the illness caused by the novel coronavirus, is spreading at a worrying pace in some parts of the northern hemisphere, a few months away from the winter influenza season.

“We are starting to see worrying trends in some countries,” Maria Van Kerkhove, WHO technical lead for COVID-19, said during a social media webcast.

“We are seeing increases in hospitalisations, in intensive care units, particularly in Spain, France, Montenegro, Ukraine and some states of the United States. That is worrying because we have not seen the flu season yet.”

Van Kerkhove also said hospitalisations of people aged 15-49 infected with COVID-19 were increasing in several countries. Dr Mike Ryan, the WHO’s top emergency expert, advised people at high risk for COVID-19 infections to get a flu vaccination. — Reuters

Covid-19: What you need to know today (Hindustan Times: 2020918)

<https://epaper.hindustantimes.com/Home/ArticleView>

Maharashtra is a clear outlier in terms of how it has been affected by the coronavirus disease (Covid-19). It ended Wednesday with 1.12 million cases – it is the province with the most cases in the world – and 30,883 deaths, according to the HT dashboard. Its cumulative positivity rate is still 20%. On Wednesday, its positivity rate was 24%. For six months to the day, the western state has topped India's daily Covid numbers in terms of daily cases. For much of this period, it has also topped the daily death tally. On Wednesday alone, it accounted for 474 of the 1,139 deaths in the country (41.6%), and 23,365 of the 97,932 cases (23.8%).

It isn't clear why Maharashtra has been ravaged by the disease. Sure, Mumbai, India's commercial capital, has among the highest population densities in the world, as also some of the largest slums, but many of Maharashtra's social and health metrics are better than those of the so-called BIMARU states. New York state, similar to Maharashtra in some ways (just as NYC is similar to Mumbai) was similarly roiled by the virus, but not as persistently as the Indian state. Cases in the US state peaked in early April, and have been fewer than 1,000 a day for the past three months (and a bit). It is the kind of thing the Union health ministry and the Indian Council of Medical Research should be investigating. It isn't clear why they aren't doing so -- understanding what's happening in Maharashtra may help us learn how to fight the virus better. Both the urban and rural parts of Maharashtra have been affected – the former more than the latter, but that's true of India as well – and every large city in the state has been hit hard.

Maharashtra has never tested enough. It has so far carried out 5.5 million tests. That translates into a little over 45,000 tests per million, but given the scale of the crisis in the state, it should be doing more. Its positivity rate is yet to traverse the trajectory seen in most countries – an increase with more testing, then a plateau, and finally a decline. Given the numbers, it is also likely that Maharashtra's contact-tracing process isn't very effective – although it's not clear to what extent this could have made things better in a state where the virus has been in community transmission mode for months. But neither of these adequately explains the scale of the crisis in Maharashtra.

Demographics could offer an explanation – but the state isn't very demographically different from the rest of India. Sure, Maharashtra is home to 10.7% of the country's population of people over the age of 60 (a group vulnerable to Covid-19); 9.9% of its population is over the age of 60, but this proportion is higher in Kerala, Goa, Tamil Nadu, Punjab, and Himachal Pradesh.

So could genetics – except the genetic profile of the Maharashtra population isn't markedly different from the Indian population as a whole, although previous studies have established that it (expectedly) bears more similarity with south Indian populations rather than central Indian ones.

That leaves two other factors. The first is Maharashtrian society, culture and living conditions in the state. The second is the state's response to the pandemic. On the second, there isn't

enough evidence to suggest that Maharashtra's government was either more proactive or less proactive than administrations in other Indian states in managing the disease. And on the first, we simply do not know enough, although it is a fact that, at least in Mumbai, social distancing isn't possible and that cases in the state have seen a renewed surge after the recent Ganesh Chaturthi festival.

And so, Maharashtra's numbers will have to remain a mystery for now – the rare instance of an early hot spot of the coronavirus disease continuing to be one six months into the pandemic.

Covid Cases (The Asian Age: 2020918)

<http://onlinepaper.asianage.com/article/detailpage.aspx?id=15110749>

Covid cases to rise due to increased testing: Jain

Delhi records 4,432 new cases in 24 hours, death toll reaches 4,877

AGE CORRESPONDENT
NEW DELHI, SEPT 17

As the national capital recorded over 4,400 cases for the second consecutive day, Delhi health minister Satyendar Jain on Thursday said Covid-19 cases in the city will show a rise in the next 10 days as testing capacity has been quadrupled. He asserted that the plan is to contain the spread of the infection in the long-run through effective isolation.

Delhi recorded 4,432 fresh Covid-19 cases on Wednesday, the second-highest single-day spike. The previous highest single-day spike of 4,473 cases was recorded on September 16. Of total 2,34,701 patients, 31,721 are active and 1,98,103 patients were recovered. With 38 deaths in the last 24 hours, total death counts rose to 4,877.

The number of containment zones in Delhi jumped to 1,670 on Thursday from 1,637 on Wednesday.

The Delhi government has also significantly ramped up testing in the last few days.

"Cases of Covid-19 and active cases will rise in the next 10-15 days as testing has been ramped up four times. But we will then be able to contain the spread of the infection in the long-run through effective isolation, as planned," said Mr Jain.

Interacting with reporters, he also said, reports of the sero-preva-



Health workers at a child-friendly Covid ward at the state-run LNJP Hospital after its inauguration in New Delhi on Thursday. — PTI

lence survey conducted in the first week of September will be first put before the high court. On results of the latest sero-prevalence survey, and asked to respond to a media report that claims 33 per cent of people surveyed had antibodies to the novel coronavirus, he said, "The result is not yet out, so on what basis, this figure is being claimed. Also, it is to be put before the high court first," he added.

Mr Jain pointed out that according to the Delhi health bulletin, the positivity rate stood at 7.15 per

cent and the death rate stood at 0.7 per cent based on data of the last 10 days.

"The situation as of now is fine," Mr Jain said.

The Delhi government has significantly ramped up testing in the past few days. The number of tests conducted and corresponding fresh Covid-19 cases reported ranged from 24,198 (2,312) on September 1 to 62,669 (4,263) on September 15. On Wednesday again, over 4,000 cases were recorded for the 62,593 tests conducted the previous day. On the availability of beds, he reiterated

there are 14,521 beds as of now. As per the bulletin, 7,738 beds are vacant.

"Also, last week order was issued that 80 per cent ICU beds in 33 private hospitals to be reserved for Covid-19 patients," said the Delhi health minister.

The number of rapid-antigen tests conducted on Thursday stood at 50,450, while the RTPCR, CRNAAT and True NAAT tests figures were 9,564, in all adding to 60,014, according to the bulletin. The bulletin said 1,98,103 patients have recovered, been dis-

charged or migrated so far. The number of people in home isolation stands at 18,638 up from 17,324 the previous day.

In a related development, a child-friendly ward, based on the theme, 'From suffering to happiness', was inaugurated at the state-run LNJP Hospital on Thursday. Television sets playing cartoons, a painting station and carrom boards are some of the amenities available at the special ward to entertain the children while they get treated for the infection, officials said.

Plea for reopening spas: HC seeks AAP, Centre's stand

New Delhi, Sept. 17: The Delhi High Court on Thursday sought response of the Centre and AAP government on a plea seeking issuance of guidelines for reopening of spas in the national capital.

Justice Navin Chawla asked the Centre and Delhi government to inform it within a week regarding their decision on permitting reopening of spas in the national capital. The court said that with each passing day the business of the people running spas was being affected as they do not know whether to continue paying rent for the space they are occupying or give it up. The court was hearing the petition moved by several persons who run spas which have been shut since the first lockdown was enforced in Delhi.

In their plea, filed through advocates Rajeshwar Dagar and Himanshu Dagar, the spa owners have contended that they have been trained as professional therapists under the National Skills Development Mission launched by PM Modi. They have further contended that when maximum number of businesses, like salons, gyms, restaurants and bars, have been granted permission

206 new cases in Noida, total tally at 11,000

Noida, Sept. 17: Gautam Buddha Nagar on Thursday recorded 206 new Covid patients and the district's infection tally reached 10,908, official data showed.

The number of active cases rose to 2,004 from 1,966 on Wednesday and 1,328 on Tuesday, according to data released by the Uttar Pradesh Health Department for a 24-hour period. On the brighter side, 165 more patients got discharged during the period and the total number of recoveries in the district reached 8,856, the data showed.

The district has so far recorded 48 deaths linked to the pandemic, with one of the lowest mortality rates—0.44 per cent—in the state, it showed. — PTI

to reopen and even Delhi Metro has been restarted, then why not the spas. The petitioners have claimed that the spas in other states are running with full safety measures, but are not permitted in Delhi. — PTI

Vaccine (The Asian Age: 2020918)

<http://onlinepaper.asianage.com/articledetailpage.aspx?id=15111143>

India takes record jump with 97,894 Covid cases in one day

Vaccine for coronavirus expected in the country by next year: Health minister

AGE CORRESPONDENT
NEW DELHI, SEPT. 17

India once again had a record jump in fresh cases with 97,894 new detections of novel coronavirus taking the country's overall tally to 51.18 lakh as per Union health ministry. However, the numbers were close to 51.50 lakh by late Thursday evening according to data from Covid19India.org. Union minister of state for culture and tourism, Prahlad Singh Patel was among the latest politicians in the list to test positive.

Union health minister Dr Harsh Vardhan told Rajya Sabha Prime Minister Narendra Modi has been personally monitoring the Covid-19 situation and added the vaccines for coronavirus can be expected in the country

UNION HEALTH minister Dr Harsh Vardhan told Rajya Sabha Prime Minister Narendra Modi has been personally monitoring the Covid-19 situation and added the vaccines for coronavirus can be expected in the country by the beginning of next year

by the beginning of next year.

"India has been registering very high recoveries for the two consecutive days as 82,961 active cases were found free of Covid-19 in the last 24 hours. Spurred by this number of very high recoveries, the national Recovery Rate continues to follow its rising curve. It stands at 78.64% today," health ministry officials said.

Maha Opp. leader booked for violating lockdown rules

AGE CORRESPONDENT
MUMBAI, SEPT. 17

An FIR has been registered against Leader of Opposition in the Maharashtra Legislative Council Pravin Darekar for protesting outside a hospital over a patient's body being handed over to wrong family. The action was taken against BJP leader Darekar and his supporters for allegedly violating restrictions enforced to curb the spread of Covid-19. On Sunday, the hospital erroneously handed over the body of Ankush Sarvade (28), who succumbed to injuries sustained in a road accident, to the family of another person, Hemant Digambar, who committed suicide, according to the BMC.

Plasma Therapy

Coronavirus | Not all convalescent plasma may have protective effect (The Hindu: 2020918)

A doctor holds a bag of blood plasma donated by a coronavirus survivor. File
A doctor holds a bag of blood plasma donated by a coronavirus survivor. File | Photo Credit: AP

There are at least three kinds of antibodies produced in an infection: IgG, IgA, IgB but the neutralising effect was most visible only in the case of the IgGs
Not all plasma from those who've recovered from COVID-19 in India may contain enough protective antibodies, says a multi-institutional study led by researchers in the country and the United States.

Also read: Coronavirus | Plasma therapy may look promising in treating COVID-19, but it is no magic bullet

When scientists checked the antibodies from 42 persons who had mild to moderate infection and had recovered, 38 of them expressed IgG (Immunoglobulin G) responses — the antibodies that are produced a week or two of the infection. However, only “half of them had appreciable neutralising antibody titres,” say the scientists in a paper uploaded on BioArxiv, an online repository of scientific papers and are usually yet to be peer-reviewed.

Plasma therapy, the administration of filtered serum from the blood of those who had recovered from the infection to those who are battling it, is among the permitted off-label interventions recommended by the Indian Council of Medical Research (ICMR) in patients with moderate disease but whose oxygen saturation levels aren't improving despite the use of steroids.

However, in the PLACID trial, among the largest studies of its kind and spread across 39 hospitals and 464 participants, the ICMR concluded that plasma therapy neither helped reduce mortality nor prevented moderately ill patients from manifesting severe COVID-19 disease.

Also read: Coronavirus | Plasma therapy didn't help COVID-19 patients: ICMR

Director General of ICMR Dr. Balram Bhargava said on Wednesday that the PLACID results hadn't been 'peer-reviewed' and only after that would the organisation consider changes to recommendations in plasma use as therapy. Several hospitals in India continue to advise caregivers — frequently through their own means — to procure plasma for ailing patients.

“Neutralising response”

The latest study underscored that only those IgG antibodies that bound to the receptor binding region of the coronavirus spike protein, which attaches itself to the body's healthy cells and

infiltrates, had a “neutralising response.” Antibodies that bound to other parts of the virus didn’t succeed in provoking such a response. Thus, doctors, when assessing plasma therapy, would be well served to evaluate the quality of the plasma via an assay, or a chemical test, that specifically evaluates the levels of RBD (receptor-binding domain)-specific IgG titres and not just crude IgG levels.

Also read: Experts question FDA nod for emergency use of plasma therapy

There are at least three kinds of antibodies produced in an infection: IgG, IgA, IgB but the neutralising effect was most visible only in the case of the IgGs, the authors noted.

“It’s important to note that many Indian government agencies and institutions are already making efforts to bring these RBD-based IgG assays more widely available, and thus this study is very relevant and timely to scientifically validate these efforts,” the ICGEB-Emory said in a statement.

The ICMR-funded study is led by Anmol Chandele and Kaja Murali Krishna of the ICGEB-Emory Vaccine Center at the International Centre for Genetic Engineering and Biotechnology. Done in collaboration with ICMR-National Institute of Malaria Research, Dept of Biotechnology and the Emory Vaccine Center, Atlanta, it doesn't explain why many with antibodies didn’t express neutralising responses, but conjectured that it could have to do with inter-individual differences in human immune responses associated with variants of the virus, the initial viral loads that those infected were exposed to, genetic factors and disease severity.

Previous studies have shown that there are relatively higher neutralising antibodies in COVID-19 hospitalised patients during the acute febrile phase, or in recovered individuals that were previously hospitalised with severe COVID-

Re-infection fears around COVID-19

The Hindu Explains | Are there re-infection fears around COVID-19? (The Hindu: 2020918)

<https://www.thehindu.com/sci-tech/health/the-hindu-explains-are-there-re-infection-fears-around-covid-19/article32590566.ece>

How long does immunity last? What are WHO and scientists saying about antibodies?

The story so far: While the fear of COVID-19 re-infection has dogged discussion on the novel coronavirus, it was in late August that the first ‘confirmed’ case of re-infection was officially recorded. A 33-year-old Chinese male from Hong Kong reportedly caught his second infection during a trip to Europe, four-and-a-half months after he first tested positive for COVID-19. Post-testing, genomic sequencing made it clear that the first and second infection involved variants of the SARS-CoV-2 virus. This seemed to rule out viral shedding or continuing infection from the first time. Subsequently, a case of re-infection in Nevada, U.S., was also similarly revelatory, thanks to viral genome sequencing.

Are these isolated cases?

While there is no doubt this finding is significant, scientists are still debating whether this comprises an isolated few cases or portends a larger batch of infections as the world opens up and global travel begins again. Questions about waning immunity and the viability of a vaccine itself are still not settled either.

Also read | Bengaluru reports 'first' case of COVID-19 reinfection

What is immunity and how does it work?

What the discussion intrinsically hinges on is the ability of the human body to fight pathogens harmful to it, and whether in COVID-19 immunity wanes a few months after infection. The human body's immunity acts in two forms — as innate, jumping to the task of protection immediately, and adaptive, meaning immunity acquired by the body in the process of surviving infection by pathogens, essentially over a period of time.

In a piece in *The New York Times*, Yale immunologists Akiko Iwasaki and Ruslan Medzhitov explain that the adaptive immune system consists of two types of white blood cells, called T and B cells, that detect molecular details specific to the virus and, based on that, mount a targeted response to it. "T cells detect and kill those infected cells. B cells make antibodies, a kind of protein that binds to the viral particles and blocks them from entering our cells; this prevents the replication of the virus and stops the infection in its tracks."

Also read | Antibodies against coronavirus start to decrease in 2-3 months, study finds

T and B cells retain this memory and help the body fight the infection later. "Yet it is also the case that with other viruses the amount of antibodies in the blood peaks during an infection and drops after the infection has cleared, often within a few months: This is the fact that has some people worried about COVID-19, but it doesn't mean what it might seem," they add. "It's a normal step in the usual course of an immune response. Nor does a waning antibody count mean waning immunity: The memory B cells that first produced those antibodies are still around, and standing ready to churn out new batches of antibodies on demand."

Also read | Dead fragments of novel coronavirus led to false positives in recovered patients

What does it mean for the future?

Reacting to the Hong Kong case, Maria Van Kerkhove of the WHO said at a briefing: "There's been more than 24 million cases reported to date... we need to look at something like this at a population level." Researchers who studied the Hong Kong case themselves said in a publication in *Clinical Infectious Diseases*: "Our results suggest SARS-CoV-2 may continue to circulate among the human populations despite herd immunity due to natural infection or vaccination. Further studies of patients with re-infection will shed light on protective correlates important for vaccine design." On its website, the WHO says it will continue to review the evidence on antibody responses to SARS-CoV-2.

Vaccine

Coronavirus | Front-line workers will get vaccine first: Harsh Vardhan (The Hindu: 2020918)

<https://www.thehindu.com/news/national/coronavirus-front-line-workers-will-get-vaccine-first-harsh-varadhan/article32593279.ece>

I shall be the first to offer myself for receiving it if people have a trust deficit, says Union Health Minister

“I shall be the first to offer myself for receiving COVID-19 vaccine if people have a trust deficit,” said Union Health Minister Harsh Vardhan while interacting on the Sunday Samvad social media platform.

Also read: Coronavirus | Oxford vaccine trials to resume in U.K.

The Minister answered queries concerning the situation, the government’s approach, the likely changes one expects to see in the post-pandemic world and the steps taken by the government in its facilitation.

Also read: Coronavirus | India has key vaccine role: Anthony Fauci

He said while no date has been fixed for the vaccine launch, it may be ready by the first quarter of 2021.

Precautions in conducting human trials

He said the government is taking full precautions in conducting the human trials of the vaccine and the National Expert Group on Vaccine Administration for COVID-19 under the Chairmanship of Dr. V K Paul, Member (Health), NITI Aayog is drawing up a detailed strategy on how to immunise the majority of the population.

Also read: India could get COVID-19 vaccine by year-end, says Harsh Vardhan

“Issues like vaccine security, cost, equity, cold-chain requirements, production timelines etc. are also being discussed intensely,” he said and assured the vaccine will be first made available to those who need it the most, irrespective of their paying capacity.

“The government is considering emergency authorisation of COVID-19 vaccination especially in the case of senior citizens & people working in high-risk settings. This shall be done after a consensus has been reached.”

Also read: ‘Social vaccine’ is need of the hour, says Harsh Vardhan

Elaborating on the vaccine candidates and their development in India, the Minister said the Department of Bio Technology (DBT) and the Indian Council of Medical Research (ICMR) have been pro-active in responding to the emerging situation to support advancement of the candidates.

Trials at different phases

The Minister said India is actively partnering with the Coalition for Epidemic Preparedness Innovations (CEPI) and trials at different phases are ongoing with respect to several vaccines in Indian laboratories (private or public) and hospitals.

He said a safe and effective vaccine will help in establishing immunity at a much faster pace as compared to the natural infection. “It is hoped that a consensus will emerge in the next few months over the desired level of protective herd immunity in any community.”

Pollution

Inhaling polluted air can lead to brain damage (The Hindu: 2020918)

<https://www.thehindu.com/sci-tech/science/inhaling-polluted-air-can-lead-to-brain-damage/article32531724.ece>

Even design: In the study, eight male mice were exposed to polluted air and eight controls to filtered air.

Even design: In the study, eight male mice were exposed to polluted air and eight controls to filtered air. | Photo Credit: Saira Hameed

Mice exposed to dirty air formed amyloid deposits and tangles in the brains

New research on mice shows that continually inhaling dirty air could be bad not just for the lungs but could also damage the brain tissue. In the study, led by Richard N. Zare of Stanford University, eight male mice were exposed to polluted air, and eight controls were exposed to filtered air. Afterwards, on examining the brain tissues of the 16 mice, the researchers found that the mice that inhaled dirty air had developed amyloid deposits, neurofibrillary tangles and plaques, while those that had inhaled filtered air showed no such developments. The study was conducted at the chemistry department of Fudan University of Shanghai, China, and the results are presented in a paper that has been accepted for publication in the journal *Talanta Open*.

Damaged brains

While the whole experiment lasted two years, the mice were exposed to dirty air six days a week, eight hours a day, for 24 weeks (six months). The researchers used a number of different analytical techniques to examine different tissues. “Of course, the lungs... were quite different – but I had not expected to find what my postdoc, Dr. Saira Hameed, observed, namely damage to the brains of all the mice exposed to dirty air but essentially no damage in the brains of mice exposed to clean air,” says Prof. Zare, who is with the Department of Chemistry of Stanford University, California, in an email to *The Hindu*.

As for the concentration of PM2.5 that made up the dirty air for the experiment, Jinzhao Zhao, from Department of Environmental Health, School of Public Health, Fudan University, says,

“We used 70 microgram per cubic metre to perform the study.” This is about twice the average value of PM2.5 seen in Shanghai.

Dirty air and clean air

“The exposure system we used in this study could filter the ambient PM2.5 [which was then given to the controls]. The composition of filtered air is similar with the outdoor air from which PM2.5 has been filtered,” says Dr Zhao, who is an author of the study, in an email to The Hindu. “However, the system cannot completely filter the PM2.5, so a little PM2.5 still exists in the filtered air.”

The brains of mice exposed to dirty air showed tangles and plaques as well as neurofibrillary inflammations. “In addition, we made a chemical analysis, and we found upregulation (concentration increase) in ceramide and sulfatides,” Prof. Zare explained.

Alzheimer’s disease

Earlier studies have shown that ceramide is directly involved in the aggregation of amyloid beta and the progression of Alzheimer’s disease. Sulphated galactosyl ceramide, also known as sulphatides (ST), are found in abundance at the myelin sheath of brain cells.

“We found upregulation of sulphatide in the brain tissues from dirty air compared to the filtered air, suggesting damages in the myelin sheath and blood-brain function dysfunction as a result of particulate matter exposure,” says Prof. Zare. “This hypothesis is supported by previous reports that have shown that the expression levels of sulphatides are associated with the physiological activity of the blood-brain barrier, and increased concentration of sulphatide has impact on myelin sheath at early stages of HIV-1 infection.”

Covid-19

India’s response to Covid-19 reflects the power, problems, potential of federalism

Response to Covid-19 shows carving out roles through consensus can address challenges to federal governance. (The Indian Express: 2020918)

<https://indianexpress.com/article/opinion/columns/coronavirus-covid-19-pandemic-and-federalism-6600329/>

Written by Srinivas Chokkakula | Updated: September 18, 2020 9:05:42 am

The experience offers an opportunity to revisit the recent debate around the federal organisation of powers under the Constitution’s Seventh Schedule.

India’s response to the COVID-19 pandemic — still a moving target having infected more than 5 million people in the country and claimed in excess of 80,000 lives — reflects the power, problems and potential of federalism in the country’s polity. In spite of the rather unilateral response in terms of imposing a nationwide lockdown, the Centre eventually chose to work carefully with the states. And, the most cynical of the chief ministers professed working with

the Centre and other states to deal with a variety of challenges posed by the pandemic. In the past few months, the country has witnessed an interesting and remarkably coordinated effort by the Centre and states in addressing a collective challenge. This exigency response will help us a great deal in understanding Centre-state relations as well as in improving mechanisms of federal governance.

The experience offers an opportunity to revisit the recent debate around the federal organisation of powers under the Constitution's Seventh Schedule. It has been argued that such organisation of powers is not cast in stone and the arrangement requires a review. Such an exercise is indeed necessary, but what should be its broad contours? The review should allow the carving out of the roles of the Centre and states to address hitherto disregarded and emerging concerns — a viral pandemic or climate change, for instance.

In one of his columns in this newspaper, Bibek Debroy argued for the need to re-examine the distribution of powers under the Seventh Schedule so as to rationalise the Centrally Sponsored Schemes (CSSs) under which the Centre extends support in sectors pertaining to the State List ('Spending issues', IE, September 12, 2019). Why should the Centre spend, Debroy asked, on a state subject like health and why couldn't states contribute to a Union subject like defence? His argument sparked a debate. Also, in this newspaper ('Leaning on the states', IE, September 24, 2019), M Govinda Rao argued that defence is a "national public good" and has to be a Union subject. "The constitutional assignments between the Centre and subnational governments in federations," Rao pointed out, "are done broadly on the basis of their respective comparative advantage". That is why "the provision of national public goods is in the federal domain and those with the state-level public service span are assigned to the states". The debate seems to have settled on at least three counts.

One, the federal organisation of powers can be revisited and reframed. Two, the CSSs must continue but they should be restructured. In addition to the schemes' rationale of reducing the horizontal and vertical imbalances among states, the Centre is also obligated to address the externalities of the states' developmental efforts under the subjects allocated to them. Three, there is a need for an appropriate forum to discuss the complex and contentious issue of reviewing federal organisation of powers and restructuring of central transfers.

Should such a review chop and change the subjects in the Union, State and Concurrent Lists? A perusal of the country's response to the COVID-19 indicates that the exercise be guided by a more nuanced perspective.

Opinion | India should opt for income support so that pandemic does not turn into a financial crisis

Consider the manner and the content of reconciliation and repositioning between the Centre and states in the course of the response to the pandemic. The Centre's efforts are now primarily focused on achieving economies of scale in vaccine procurement, knowledge production for setting standards and guidelines for the states, and mitigating inter-state externalities. States continue to play the dominant role in the execution of the actual response to the health crisis. In other words, the fundamental principles of comparative advantage prevailed, but they were organised on the basis of certain functional roles and responses.

So, here is the key takeaway. In spite of health being a state subject, the response to collective threats linked to the subject required some kind of organisation of federal responsibilities on a functional basis.

How can such coordination be sustained on a long-term basis? A typical response is to recommend shifting subjects to the Concurrent List to enable an active role for the Centre. This is how the High-Level Group, constituted by the 15th Finance Commission, recommended shifting health from the State to the Concurrent List. A similar recommendation was made earlier by the Ashok Chawla Committee for water.

But is such shifting of subjects from the State to Concurrent List really feasible in these times of acute sub-nationalism, deep territorialisation and competitive federalism? Will the aspired cooperative federalism get the states to agree to ceding powers and conceding space, particularly in their traditionally exclusive domains? That seems unlikely. Yet, the most collective threats and the challenges of coping with emerging risks of sustainability are linked to either the State List subjects or the ones that rely on actions by states — water, agriculture, biodiversity, pollution, climate change. Some of these also require ensuring sustainability of common pool resources — water, for example.

This extended role of ensuring security against threats to sustainability of resources forms a new layer of considerations. This should define the contours of a coordinated response between the Centre and States — as it happened during the pandemic. In fact, such threats and challenges require the states to play a dominant role. At the same time, the Centre must expand its role beyond the mitigation of inter-state externalities and address the challenges of security and sustainability.

Opinion | Fatigue in the Covid fight grows

The GST reforms is the most recent instance of such reworking of the Centre-state roles for a greater and collective goal. It involved a tortuous, but a new consensus building approach to implement the reforms. Former Finance Minister Arun Jaitley, who spearheaded its implementation, suggested a similar consensus-building for sectors like health, rural development and agriculture. The country's response to the pandemic has shown that carving out roles through consensus can address new challenges to federal governance.

What should be an appropriate forum for this purpose? The experience of the GST Council may help here as well. The ongoing friction between the Centre and the states over GST reforms tells us that consensus-building is not a one-time exercise. It has to allow sustained dialogue and deliberation. Is there an institutional space that offers the necessary resilience and credibility? Perhaps it is time to revisit the proposal for an elevated and empowered Inter-State Council.

This article first appeared in the print edition on September 18, 2020 under the title 'Pandemic and federalism'. The writer is MoJS Research Chair — Water Conflicts and Governance Centre for Policy Research, Delhi. Views are personal.

Home Remedy

Efficacy of yoga, ginger, turmeric for astronauts needs to be studied' (New Kerala: 2020918)

<https://www.newkerala.com/news/2020/165566.htm>

India's human space flight programme will be a sustained activity and will not end just with Gaganyaan mission - the country's first human space mission, said senior officials of the Indian Space Research Organisation.

The officials also said apart from innovative engineering and technological solutions for a sustained human space programme, the efficacy of yoga on astronauts' health and the protective capabilities of wonder spices ginger and turmeric will have to be explored further.

Looking beyond Gaganyaan, the Indian space agency is looking at setting up crew training facilities, inflatable space habitat, rendezvous and docking, space station building, long duration manned space travel, telerobotics, artificial intelligence and spin-offs to the society, S. Unnikrishnan Nair, Director, Human Space Flight Centre, part of ISRO said on Thursday.

He was speaking at the space sector conference 'Ushering the new era in Indian Space Sector' organised by Confederation of Indian Industry (CII) in association with Indian Space Research Organisation (ISRO), Antrix Corporation Limited and supported by NewSpace India Limited (NSIL).

Unnikrishnan said the space agency is working seriously on the inflatable habitat that can be used in space as well as at high altitudes - for defence personnel - and also for use during natural disasters.

Under the Gaganyaan mission, India plans to send three astronauts into space in 2022. They will orbit in space at about 400 kms above the earth for five to seven days and then return back.

Prior to that, there will be two unmanned space missions to test the rocket and the crew module systems.

According to Unnikrishnan, presently the astronaut life support systems; orbital module development; recovery and rehabilitation of the astronaut; coordination with academia and industry and other collaborations are being undertaken.

He said four Indian Air Force pilots are undergoing basic astronaut training in Russia and they will be back by March next year and undergo Gaganyaan-specific training in India.

Unnikrishnan said the Indian industry will be contributing in a rich way in realising various simulators for the training.

He said parachutes, crew escape systems and other tests will be done before the first unmanned flight.

According to V.R. Lalithambika, Director, Human Space Flight Programme, several research and development (R&D) activities have to be undertaken now to have a sustained manned mission programme.

She said the R&D should be done in multiple domains like engineering, human-centric and life sciences.

Lalithambika said apart from advanced materials, polymers, optics, robotics and others have immense potential for industries.

She also said being confined in an isolated environment with limited communication with the outside world may lead to psychological issues for astronauts.

The efficacy of yoga and the Indian system of traditional medicine to mitigate some of these effects and the potential protective capabilities of some of our wonder spices like turmeric and ginger in the space environment would also need to be explored further.

Lalithambika also said it could lead to large scale commercial benefits on earth.

According to her, the sustained human space flight programme will offer space travel opportunities for experts in other fields like academic, industrial research specialists and others.

Steroids

Kids who take steroids at increased risk for diabetes: Study (New Kerala: 2020918)

<https://www.newkerala.com/news/2020/165528.htm>

Children who take oral steroids to treat asthma or autoimmune diseases have an increased risk of developing diabetes, high blood pressure, and blood clots, warn researchers.

The study, published in the American Journal of Epidemiology, examined the records of more than 933,000 US children from ages 1 to 18 with or without autoimmune diseases, such as inflammatory bowel disease, juvenile arthritis or psoriasis.

Among those without an autoimmune disease, about two in three children who received prescriptions for steroids had evidence of asthma.

"The rates of diabetes, high blood pressure and blood clots from oral steroids have been studied in large populations of adults," said study author Daniel Horton from the Rutgers University in the US.

"However, there are reasons to think these findings might be different in children, who not only tend to take steroids differently than adults but also have much lower baseline risks of developing these same cardiovascular and metabolic conditions," Horton added.

This study allowed researchers to put numbers on the association between oral steroids and rare, but potentially serious, complications in children.

The researchers found that children who were receiving high steroid doses experienced these complications at much higher rates than children taking low doses or who had taken steroids previously.

Among the complications studied, high blood pressure occurred most commonly with steroid treatment.

All of these complications were more common among children with autoimmune diseases, independent of the steroid effect.

"While children receiving high-dose steroids were at substantially higher risk for developing diabetes, high blood pressure or blood clots relative to children not taking these medicines, the absolute risks of these complications were still small," Horton said.

The vast majority of children taking brief courses of steroids for conditions such as asthma, for instance, will not experience these complications," the study author noted.

Anxiety rates

Anxiety rates due to job insecurity similar among men, women (New Kerala: 2020918)

<https://www.newkerala.com/news/2020/165498.htm>

Contrary to the common belief, researchers have found that men and women might experience similar rates of anxiety due to job insecurity.

As more people work temporary gigs with little protection or fear layoffs in an unstable economy, job insecurity is on the rise. These stresses understandably contribute to poor mental health and feelings of anxiety.

But given gender disparities in the workforce - women are more likely to work temporary jobs and receive lower pay - researchers were curious whether job insecurity affected men and women differently.

"Public health consequences of job insecurity need to be seriously considered, given that recent changes due to Covid-19 crisis, are likely to result in a higher prevalence of workers, both males and females, feeling threatened by involuntary job loss," said study researchers from the University of Milano-Bicocca in Italy.

The study, published in the journal *Frontiers in Sociology*, analysed data from the European Working Conditions Survey, looking at results from 2005, 2010 and 2015.

The survey asked people to what extent they thought they might lose their job in the next six months and whether they had experienced anxiety over the last 12 months.

The study found that, in Europe, men and women actually reacted to job insecurity fairly similarly. Female workers reported similar rates of anxiety due to an insecure job to their male counterparts.

This may be due to trends towards gender egalitarianism in Europe.

But while women and men might be affected at similar rates, the researchers said that job insecurity is very much still a real concern.

In order to analyse whether the threat of job insecurity was more pronounced in certain European countries due to socioeconomic, cultural, or political variables, the team used multilevel modelling analyses.

They found few cross-national differences in their results, meaning the relationship between job insecurity and anxiety did not vary between countries.

"The study was limited by the fact that all data were self-reported and taken at a single time point, so cause-and-effect cannot be determined," the researchers wrote.

The findings have practical implications for both policymakers and employers and suggest that generous and more effective active labour market programmes are needed in order to address perceived job insecurity and its associated mental health challenges.

Smoking

Smoking linked to bleeding in the brain: Study (New Kerala: 2020918)

<https://www.newkerala.com/news/2020/165494.htm>

Smoking most likely has a significant share in all cases of subarachnoid haemorrhage, the most fatal type of cerebrovascular disturbances in the brain, warn researchers.

The study, published in the journal *Stroke*, reaffirmed a link between smoking and subarachnoid haemorrhage (SAH), a type of bleeding stroke that occurs under the membrane that covers the brain and is frequently fatal.

"Our study provides evidence about the link between smoking and bleeding in the brain," said study researcher Ilari Rautalin from the University of Helsinki in Finland.

This study utilized health care data from the Finnish Twin Cohort, a national database of 32,564 individuals (16,282 same-sex, twin pairs in Finland) who were born before 1958 and alive in 1974, and followed for over 42 years between 1976 and 2018.

The researchers sought to clarify the factors involved when only one twin suffered from fatal bleeding in the brain and hypothesised that smoking - the most important environmental risk factor - could play a significant role.

Researchers identified 120 fatal bleeding stroke events among the twins, and the strongest link for a fatal brain bleed was found among smokers.

Data collected from surveys included smoking; high blood pressure (diagnosis or use of antihypertensive medications), physical activity, body mass index, education, and alcohol use.

Participants were separated into two groups smokers (occasional or current) or non-smokers (never and former). Current smokers were classified according to the number of cigarettes smoked per day light, less than 10; moderate, 10-19; heavy, 20 or more.

The analysis of the 120 fatal bleeding events found four fatalities occurred among both twins in two pairs.

In the remaining 116 fatalities, one twin died of bleeding in the brain, while the other died of another cause, migrated during the follow-up or was still alive at the end of the study follow-up.

Heavy and moderate smokers had three times the risk of fatal bleeding in the brain, while light smokers had slightly less at 2.8 times the risk.

According to the study, the median age at the fatal brain bleed was 61.4 years.

Risk factors such as high blood pressure, lower physical activity rates and being female were not found to be significant influences in this investigation, unlike prior studies.

"Smoking was associated with fatal bleeding in the brain consistently in both men and women and with bleeding stroke deaths within twin pairs where only one of the twins died from a SAH," the study authors wrote.

Potential Covid-19 drug

Potential Covid-19 drug azithromycin may up risk of cardiac events (New Kerala: 2020918)

<https://www.newkerala.com/news/2020/165243.htm>

New research adds to the growing body of evidence that potential Covid-19 drug azithromycin -- a commonly-prescribed antibiotic -- may increase the risk for cardiac events in patients.

The study, published in the journal JAMA Network Open, found that if the azithromycin drug is taken with certain other drugs that affect the electrical functioning of the heart, then cardiac events increased.

"Our findings should give researchers and clinicians looking at azithromycin as a potential treatment for Covid-19 pause," said study author and Indian-origin researcher Haridarshan Patel from the University of Illinois Chicago in the US.

"We found that if taken together with drugs that affect the electrical impulses of the heart, the combination is linked with a 40 per cent increase in cardiac events, including fainting, heart palpitations and even cardiac arrest," Patel added.

Drugs that affect the electrical impulses of the heart, specifically the interval in the electrical rhythm called the QT interval, are called QT-prolonging drugs.

These drugs include blood pressure medications such as ACE inhibitors and beta-blockers, some antidepressants, anti-malaria drugs such as hydroxychloroquine and chloroquine, opioid medications and even muscle relaxers.

Previous studies looking at azithromycin and cardiac events examined specific populations that tend to be older and have more health issues, including Medicaid patients and veterans.

But in this study, the team used a large database containing medical data on millions of patients in the US with a mean age of 36 years old.

The risk of cardiac events with azithromycin was evaluated against amoxicillin, another antibiotic that has never been linked to cardiac events and which has no impact on the QT-interval.

The researchers looked at data from more than four million patients who were hospitalized or visited an emergency department for a cardiac event between 2009 and 2015 who started taking either amoxicillin or azithromycin within five days of their hospital visit.

The researchers found that the likelihood of cardiac events with azithromycin compared with amoxicillin was not significantly higher, with the most common cardiac events being fainting and palpitations.

However, among patients taking both a QT-prolonging medication and azithromycin together, the risk of cardiac events was 40 per cent higher compared with the amoxicillin group.

"Studies looking at using azithromycin to treat Covid-19 or other diseases should very carefully consider its use among patients who are also taking QT-prolonging medications," Patel noted.

Recently, a study published in the journal Lancet Rheumatology revealed that the combination of hydroxychloroquine (HCQ) and azithromycin (AZM) has been linked to significant cardiovascular risks.

Hypertension

Hypertension most common comorbidity among Covid patients: AIIMS doctor New Kerala: 2020918)

<https://www.newkerala.com/news/2020/164923.htm>

The All India Institute of Medical Sciences (AIIMS), Delhi, recorded underlying health conditions or comorbidities in 98.5 per cent of coronavirus patients admitted to the hospital for treatment in September with hypertension being the most common form.

There is a grave interlink between comorbidities and coronavirus infection. Patients with hypertension, diabetes, coronary heart disease, chronic obstructive lung, carcinoma or chronic kidney disease have higher chance of succumbing to the disease, according to public health experts.

According to Animesh Ray, Assistant Professor in the Department of Medicine at AIIMS, "In September, 137 patients were admitted to AIIMS, and comorbidities were present in 98.5 per cent of them. There was presence of comorbidities in almost all the patients, barring two."

Ray said that hypertension was the most common form of ailment in the patients, followed by diabetes and malignancy.

"One in four patients had multiple comorbidities. Out of 137, 128 were discharged while nine succumbed to the disease, out of which six were asymptomatic or had mild infection, while three were severely ill," Ray said during the AIIMS National Combined Grand Rounds on Covid-19.

Hypertension is defined as blood pressure above 140/90, and is considered severe if the pressure is above 180/120. High blood pressure often has no symptoms. Over time, if untreated, it can cause health conditions, such as heart disease and stroke.

AIIMS Director Randeep Guleria, who is also the part of a core team monitoring the pandemic, also said that comorbidities not only lead to a poor prognosis in terms of morbidity and mortality, but sometimes they also get aggravated because of underline Covid-19.

"Diabetes has emerged as an important comorbidity. It can lead to poor prognosis in terms of morbidity and mortality, especially where diabetes is not well-controlled. It has been well said that a collision of two pandemics -- Covid-19 pandemic and diabetes pandemic -- has led to worse outcomes in these patients."

Guleria added that there is a bi-directional flow as far as diabetes and Covid-19 is concerned. Individuals who have diabetes have more severe Covid-19 infection.

"There are some data which suggest that it may aggravate to lead to the development of Type-1 diabetes. Anyone who has diabetes, infection control becomes an issue for him/her."

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