Oxford University Covid-19 vaccine

Oxford University Covid-19 vaccine hopes rise with strong trial results (The Tribune: 2020717)


‘Double defence: Stimulates body to produce both antibodies and killer T-cells’

Researchers at the University of Oxford believe they may have a breakthrough in their search for a COVID-19 vaccine after the team discovered that the jab could provide “double protection” against the deadly coronavirus following early stage human trials, according to media reports in the UK.

Blood samples taken from a group of UK volunteers given a dose of the vaccine showed that it stimulated the body to produce both antibodies and “killer T-cells”, a senior source from the trial was quoted by ‘The Daily Telegraph’ as saying.

The discovery is promising because separate studies have suggested that antibodies may fade away within months while T-cells can stay in circulation for years.

However, the source cautioned that the results, while “extremely promising”, did not yet prove that the Oxford vaccine provides long-lasting immunity against the deadly virus.

“I can tell you that we now know the Oxford vaccine covers both bases – it produces both a T cell and an antibody response. It’s the combination of these two that will hopefully keep people safe. So far, so good. It’s an important moment. But we still have a long way to go,” the source said.

Another source close to the team described the presence of both antibodies and T-cells as a “double defence” against COVID-19.
‘The Lancet’ medical journal has confirmed that it would be publishing early-stage human trial data from the Oxford team on Monday.

David Carpenter, chairman of the Berkshire Research Ethics Committee, which approved the Oxford trial, said the vaccine team was “absolutely on track”.

“Nobody can put final dates... things might go wrong but the reality is that by working with a big pharma company, that vaccine could be fairly widely available around September and that is the sort of target they are working on,” he said.

The vaccine development, by the university’s Jenner Institute, is being supported by the UK government and AstraZeneca, which will support the production phase.

The pharmaceutical company said last month that phase one trials were due to finish and a phase three trial had begun which will see the vaccine given to thousands of people so it can be tested for efficacy and safety.

“The COVID-19 vaccine trial team have been working hard on assessing the safety and immunogenicity of ChAdOx1 nCoV-19, and preparing to assess vaccine efficacy.” Sarah Gilbert, professor of vaccinology at the university’s Jenner Institute who is leading the research, had said back in May.

The vaccine, named ChAdOx1 nCoV-19, is based on a weakened version of the common cold that causes infections in chimpanzees. It also contains the genetic material of the spike protein of SARS-CoV-2 – the strain of coronavirus that causes the COVID-19 illness.

The Oxford University vaccine is one of more than 100 in development as the novel coronavirus continues to spread – infecting more than 13 million people and killing at least 582,000 worldwide. — PTI
Can a pregnant woman spread the coronavirus to her foetus?

It’s possible, but it seems to be relatively rare and scientists think they know why that is.

Many viruses can cross the placenta and infect a foetus in the womb, and evidence has been growing that the coronavirus sometimes can too.

Researchers in Italy studied 31 women with COVID-19 who delivered babies in March and April and found signs of the virus in several samples of umbilical cord blood, the placenta and, in one case, breast milk. But this sort of testing can just detect bits of genetic material - it doesn’t mean there is virus capable of causing infection in those places.

In one case, there was strong evidence suggesting the newborn had the virus at birth because signs of it were found in umbilical cord blood and in the placenta. In another, a newborn had certain coronavirus antibodies that are unable to cross the placenta, so they could not have come from the mother.

A report from France gave even stronger evidence of in-the-womb infection, and that newborn was very ill at birth.

Meanwhile, research led by the National Institutes of Health gives a possible reason for why foetuses aren’t infected more often: cells in the placenta rarely make the two tools that the coronavirus typically uses to gain entry. In contrast, they found plenty of what Zika and another type of virus use.

Most research so far has been on women who were in late stages of pregnancy when they got the virus; more research is needed on what happens if infection occurs earlier in pregnancy.

The advice to pregnant women remains the same: wear a mask in public, wash hands often and stay at least six feet away from others to avoid infection. — AP
Distinct immune system pattern in severe Covid-19 patients identified (The Tribune: 2020717)


Distinct immune system pattern in severe Covid-19 patients identified
Photo for representational purpose only. PTI

Researchers studying the immune responses of 125 hospitalised COVID-19 patients have identified distinct immune profiles, or “immunotypes”, and showed how these were linked to disease severity, an advance which may aid in the development of novel therapeutics against the disease.

According to the study, published in the journal Science, whether there is a common profile of immune dysfunction in critically ill COVID-19 patients remains unknown.

“By localizing patients on an immune topology map, we can begin to infer which types of therapeutic interventions may be most useful in specific patients,” said the scientists, including Divij Mathew from the University of Pennsylvania in the US.

To date, the researchers said studies investigating this are limited, reporting on single patients or small cohorts.

They said as the global COVID-19 pandemic continues, scientists worldwide continue to investigate the characteristics of the human immune response in fighting it.

Seeking to expand on findings reported so far, and also to better connect immune features in COVID-19 patients with clinical features of disease, Mathew and his colleagues assessed the
The researchers said they used a method called flow cytometry, which is a technique used to detect and measure physical and chemical characteristics of a population of cells, to assess the patient immune cells.

They said the study also collected clinical data on the patient cohort.

Combining the flow cytometric and clinical data, the study reported several key findings, including that a defining feature of COVID-19 disease in this group is variability in their own immune response.

It also noted that certain stable immune response signatures in subsets of their patients, which changed over time in consistent ways.

According to the researchers, some of these patterns, like impaired activation of a part of the immune system called the CD8 T cells, were associated with worse disease outcomes.

The scientists defined three of these immune response signatures, or immunotypes, associated in the patients with poor clinical trajectories versus improving health.

“These immunotypes may reflect fundamental differences in the ways patients respond to SARS-CoV2 infection,” they said.

The scientists believe their findings “provoke the idea of the tailoring clinical treatments or future immune-based clinical trials to patients whose immunotype suggests greater potential benefit.” PTI
to Rs 650 and will be considerably cheaper compared to currently available kits in the market. It can deliver results within three hours.

HRD Minister Ramesh Pokhriyal ‘Nishank’ launched the test kit named “Corosure” which will now be available for use at authorised testing labs.

“The Corosure Kit has been developed indigenously and is much cheaper than other kits. The country requires cheap and reliable testing for the country which can help control the pandemic. The kit has received ICMR approval with the highest score and DCGI approved with a very high sensitivity and specificity,” he said at the launch.

Referring it to as world’s most affordable COVID-19 diagnostic kit, the HRD Minister said the innovation is a step towards “Make in India”.

IIT Delhi, which became the first academic institute to get ICMR nod for a COVID-19 testing method, gave non-exclusive open licence to 10 companies for commercialising the test, but with a price rider of R 500 for the assay needed for testing.

The kit Corosure has been commercialised by Newtech Medical Devices.

According to the team at IIT Delhi, the current testing methods available are “probe-based”, while the one developed by them is a “probe-free” method, which reduces the testing cost without compromising on accuracy.

Using comparative sequence analyses, the IIT Delhi team identified unique regions (short stretches of RNA sequences) in the COVID-19 and SARS COV-2 genome.

“These unique regions are not present in other human coronaviruses providing an opportunity to specifically detect COVID-19,” Professor Vivekanandan Perumal, lead member of the team, had said.

“Primer sets, targeting unique regions in the spike protein of COVID-19, were designed and tested using real-time polymerase chain reaction. The primers designed by the group specifically bind to regions conserved in over 200 fully sequenced COVID-19 genomes. The sensitivity of this in-house assay is comparable to that of commercially available kits,” Perumal added. PTI

Covid-19: What you need to know today
Covid-19: What you need to know today (Hindustan Times: 2020717)

As it crosses a million cases of the coronavirus disease, India accounts for 7.14% of the people around the world who have been infected by the Sars-CoV-2 virus, and 4.26% of the people who have succumbed to the disease. It also accounts for 8.1% of the people who have recovered. Its lower share of deaths (compared to cases) and higher share of those recovered means the country hasn’t done too badly (relatively), but as a friend, with whom I shared this
sentiment, said: “Try telling that to the 25,000 people who have died – or their families.” Numbers, unfortunately, can’t capture the pain.

Six months is all it has taken for Covid-19 to upend all plans for 2020, disrupt lives and livelihoods, and prematurely usher in a future for which not everyone is ready, and which comes with its own set of inequalities. Still worse, its impact on people is directly related to current inequalities – most notably around income, class, and gender. The poorest and the most vulnerable have been hit the hardest, and there are fears that millions may slip back into the poverty from which they emerged only recently. Even among businesses, it is the smaller ones, already weakened by the rush to formalise the economy over the past four years, that have borne the brunt.

Around 55.7% of India’s first million cases are from Delhi, Maharashtra, and Tamil Nadu. That trend is already waning, though. On Wednesday, only 44% of the new cases came from the two states and the Capital. On Tuesday, only 43% did. And on Monday, a little less than 43% did. While it is true that we are still seeing the first wave of infections at the national level, and cases could spike again in Delhi, Maharashtra, and Tamil Nadu, I believe what we are beginning to see now is the end (or the beginning of the end) of the first phase of the virus’s run in India.

Since April, the two states and the Capital have accounted for a large proportion of the cases in India. In early April, the three accounted for 50% of new cases, a proportion that fluctuated sharply that month, but then rose again to around 50% by the end, then hovered between 50% and 70% (yes, it went that high) in May and June. On June 22, the two states and the Capital accounted for 69.3% of new cases. That was the peak. Since then, the share of the three in daily new cases has been falling. It was around 60% in early July.

Eight states are in line to take over: Andhra Pradesh, Assam, Bihar, Gujarat, Karnataka, Telangana, Uttar Pradesh, and West Bengal. Together, they accounted for 42% of the new cases on Wednesday. This is a proportion that has been the rise since July 1, when they accounted for just 29.3% of new cases.

Together, they also account for around 55% of India’s population.

Could the run of the coronavirus disease through these states mark India’s second phase?

It could, and that should raise red flags everywhere. The quality of public health care in some of these states (as reflected in their development indicators) is a cause for concern. But this group is problematic for another reason – it has states that have the worst record when it comes to testing, Bihar, Uttar Pradesh, West Bengal, even Gujarat. As they start testing more, they will discover new cases, which means their share of the daily new cases could rise even more and even faster – at the current doubling rate, India could reach two million cases in the second week of August.
1 MILLION PANDEMIC: INFECTIONS

PANDEMIC: India records over 36k fresh cases and 690 deaths; active cases stand at 343,268
SPREAD: After first million takes 137 days, experts say the next may be recorded in less than a month (Hindustan Times: 2020717)

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

India on Thursday became only the third country in the world — after the United States and Brazil — to hit a million Covid-19 infections, with 36,247 new cases taking the country’s tally to 1,004,652, and 690 new fatalities putting the disease death toll in the four-and-a-half months of the outbreak at 25,594.

Experts estimate the next million to take less than a month — the doubling rate stands at 20.6 days — and say the focus now needs to shift to rural parts of the country that traditionally have been beyond the reach of adequate health care mechanisms, and where new hot spots are now feared to pop up.

On Thursday, India had 343,268 active cases and the case fatality rate (CFR) — the proportion of people who succumbed to the illness from among known infections — was 2.5%. The US, which has 3,648,250 cases and 140,518 deaths, has a fatality rate of 3.9%; and Brazil, with 1,978,236 cases and 75,697 infections, is at 3.8%.

India’s journey to a million cases took 137 days, and half of these were in a hard nationwide lockdown announced in the early days of the outbreak — a strategy that officials and experts said bought the country precious time to set up isolation centres, add hospital beds and beef up testing infrastructure. With crippling economic costs piling up, the country began unlocking in June, when the outbreak was on a sharp upward trajectory,

In the last week, however, India has added an average of 30,076 cases a day, up from 23,895 a day in the seven-day period before that. At least two states, Bihar and Assam, announced they will be reimposing lockdowns while Uttar Pradesh — the state with the highest population — said it will follow a weekend shutdown.

At this rate, Covid-19 infections are on track this year to surpass the roughly 2.4 million tuberculosis infections recorded in India in the 12 months of 2019, and lead to a comparable number of deaths. TB, widely regarded as the deadliest infectious disease in India, led to the deaths of around 79,000 people, according to the Union government’s India TB Report 2020, although the World Health Organization (WHO) estimates this number to be over 400,000.

“With nearly 400,000 active Covid-19 cases, we will never be able to have a long enough lockdown to get the cases to 100s,” said Bhramar Mukherjee, the head of biostatistics at University of Michigan, among a team of academics from three American universities that predicted India would hit 1 million cases by July 15 after the lockdown began to lift.
Mukherjee stressed on the need to step up testing and closely analyse real-time data in order to head off the outbreak. “It is important to identify states and metros at nascent stages of growth and impose strong measures, including punctuated modulated lockdown. This cannot be done when infections are already leading to large case-counts. What you are seeing today happened two weeks ago,” she added.

A second expert said that increasing testing in places where coverage has been limited will now be crucial. “There’s no doubt that the disease is widespread, with even community transmission obvious in certain states. The way ahead is to test as many people as possible, to be able to track and isolate those people who are infected so that the disease spread is contained. If you isolate them in time then the spread in the community will be curtailed,” said Dr Jacob John, former head, virology department, Christian Medical College, Vellore.

India’s average weekly test positive rate has risen from 7.7% in mid-June to 10.1% at present, but the aggregate level statistics mask sharp differences in testing performance across the country. Maharashtra, the state with the highest number of infections at 284,281, has a test positive rate close to 20%, while for Uttar Pradesh, this number is less than 4%.

WHO identifies 8-12% as the ideal range for test positive rate in a country with an active outbreak. A number too low or too high implies that volume as well as targeting of Covid-19 testing is inadequate to accurately detect the spread of the disease. Three states have a test positive rate in this range. Tamil Nadu and Gujarat have a positive rate of 8.7% and 9% but experts have expressed scepticism on the numbers due to the other parameters reported from these region. Tamil Nadu has a CFR of 1.4% while for Gujarat, this number is 4.7%.

Delhi is the only other region with a test positive rate of 8.1%, as well as the highest per population testing numbers across the country. The national capital has recorded a sustained decrease in new cases for the last six days at least, and a dashboard by Mukherjee and her team estimates that the rate of transmission in the Capital is now below 1 — a threshold below which an outbreak can potentially be halted.

“Only two states, Maharashtra and Tamil Nadu, constitute 48.15% of country’s total active case load. Of the total 36 states and UTs, only 10 states constitute 84.62% of the total active case load,” the Union health ministry said in a statement on Thursday, adding that “targeted measures have contributed to a steady decline in the number of active cases”.

Health Worker

Survey outside red zones to spot people at high risk (Hindustan Times: 2020717)

https://epaper.hindustantimes.com/Home/ArticleView
SCREENING: 682 areas being surveyed to identify those with Covid-19 symptoms

A health worker collects a swab sample from a child for a Covid-19 test. Vipin Kumar/HT PHOTO

The city’s district administrations are conducting surveys in at least 682 areas outside containment zones that house over six million people, to identify “high-risk” persons and those with symptoms of the coronavirus disease (Covid-19), senior government officials said.

The localities have been identified after the director-general of health services (DGHS) on July 9 issued modified guidelines for Covid-19 surveillance in the city. The 682 localities are mostly areas around containment zones, as well as those reporting isolated Covid-19 cases for 28 days or more. The localities also include areas that have seen infrequent isolated cases irrespective of the number of days.

High-risk individuals are defined as those who have been in contact with Covid-19 patients, people aged over 60, pregnant women, people with severe acute respiratory illnesses, people with influenza-like illnesses and individuals with comorbidities, which may include diabetes, cardiovascular ailments, hypertension and kidney-related issues, a senior government official said.

“The district administrations have collectively reported that a total of 6,533,724 persons reside in these 682 localities identified across Delhi. Around 40,000-50,000 persons are being screened every day across the city in these localities. The aim of this survey is to identify symptomatic and high-risk individuals, most of who are then administered rapid antigen tests,” said a senior government official.

According to a Delhi government report also submitted to the MHA on July 12, of the 11 districts in Delhi, 165 localities are in southeast district — a population of roughly 1,800,000.

The central district administration has identified 50 such localities where the aim is to cover as many as 1,843,836 people. The west district administration has identified 97 localities in which 13,198 persons reside, the lowest of all districts.

Till July 6, the government had kept its door-to-door survey restricted to the containment and buffer zones in Delhi. It was decided on July 9 survey would be expanded beyond containment zones.

“The survey within the city’s 658 containment zones is a continuous process and is going simultaneously along with the survey of areas outside the hotspots. In containment zones, over 375,822 people are being covered,” said a second official from the government’s revenue department.

Both surveys are continuous processes and do not have fixed deadlines, officials said.

For the surveys, over 13,000 booth-level officers (BLOs), health officials and Accredited Social Health Activists (ASHAs) have been deployed. Health-related data concerning all family members in each household is fed into a mobile application linked to a dashboard maintained by the Delhi Disaster Management Authority (DDMA), which is chaired by Lieutenant Governor Anil Baijal. Chief minister Arvind Kejriwal is DDMA’s vice-chairperson.
“In areas with isolated cases, the district surveillance officers (DSOs) have also been asked to review localities that have been regularly reporting cases for over 14 days by mapping cases in terms of time and geographic location. Epidemiological situation analysis and tracking the transmission chains are also being done by the districts in this case,” a health department official said.

Apart from the survey, district authorities are also conducting tests among ‘special surveillance groups’ (SSG) comprising rickshaw/auto, taxi, goods carriage and lorry drivers, domestic helps, daily workers (plumbers, electricians, carpenters, etc) and daily suppliers of food, general stores and delivery persons.

The media advisor to chief minister Arvind Kejriwal did not respond to requests for comment.

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New Covid-19 Cases (The Asian Age: 2020717)


Covid: India records 32,695 cases in a day

AGE CORRESPONDENT
NEW DELHI, JULY 16

India saw a record increase of 32,695 fresh coronavirus cases in a day, taking the total count to 9,68,875 till Thursday morning, and 606 more deaths, taking the toll to 24,915. Maharashtra (7,975), Tamil Nadu (4,496), Karnataka (3,176), Andhra Pradesh (2,432), Uttar Pradesh (1,659), Delhi (1,647), Telangana (1,597), West Bengal (1,589) and Bihar (1,328) contributed about 80 per cent of all new cases in the single-day spike.

However, the number of patients recovering from Covid-19 is also rising, with 20,783 cured in the last 24 hours, taking the total recoveries to 6,12,814.

The gap between recovered patients and active cases has risen to 2,81,668, with 3,31,146 cases now active.

The recovery rate is 63.25 per cent.

Officials said increased testing, ramping up the health infrastructure, prioritising surveillance and ensuring mapping of the aged population was helping to detect cases early. Over 3.26 lakh samples were tested in the last 24 hours, with 9,231.5 tests per million population being done now.
Obese people

Obese people at higher risk of Covid-19 severity, death: Study (New Kerala: 2020717)


Researchers have found that the risk of greater Covid-19 severity and death is higher in people with any obese body mass index (BMI). The findings, published in the European Journal of Endocrinology, showed that BMI over 30 was associated with a significantly higher risk of respiratory failure, admission to intensive care and death in Covid-19 patients, regardless of age, gender and other associated diseases.

"Our study showed that any grade of obesity is associated with severe Covid-19 illness and suggests that people with mild obesity should also be identified as a population at risk," said study researcher Matteo Rottoli from the Alma Mater Studiorum University of Bologna in Italy. The current guidelines for identifying those at higher risk in the UK are set at a BMI of 40 but these data suggest people with BMI over 30 should also be classified as at risk.

Since the onset of the COVID-19 pandemic, several studies have implicated obesity as a risk factor for more severe effects and death in Sars-COV-2 infection. The UK and US guidelines for identifying those at greater risk are set at a BMI of 40 and above. However, these recommendations were necessarily based on smaller studies and limited data, given the novelty and fast progression of the Sars-COV-2 pandemic.

For the findings, the research team analysed the outcomes of almost 500 patients hospitalised with Covid-19.

They found that obesity was associated with a significantly higher risk of severity and death but also that any BMI higher than 30 was associated with these adverse outcomes. According to the study, the association between higher BMI and severe Covid-19 illness is strong but the cause remains to be explained.

An impaired immunological response to viral infections, alterations of lung function and obesity-related chronic inflammatory states have all been suggested as the link. The next step for this research would be to understand these mechanisms.

"Our hypothesis is that Covid infection outcomes depend on the metabolic profile of patients and that obesity, interlaced with diabetes and metabolic syndrome are involved too," Rottoli said."BMI cut-off should be reassessed to ensure we identify everyone at higher risk of serious infection and to avoid underestimating the potential population impact of Covid-19 infection," he noted.
Metabolic syndrome

Obesity and metabolic syndrome are risk factors for severe influenza, COVID-19
(New Kerala: 2020717)


Metabolic syndrome increases the risk of severe disease from a viral infection, according to a review of the literature performed by a team of researchers from St. Jude Graduate School of Biomedical Sciences and the University of Tennessee Health Science Center, both in Memphis.

The research has been published in the Journal of Virology, a publication of the American Society for Microbiology.

Metabolic syndrome is a cluster of at least 3 co-occurring conditions that raise the risk of heart disease, stroke and type 2 diabetes mellitus (T2DM). These conditions include excess abdominal fat, high blood pressure, excess blood sugar, abnormalities of lipids (including excess triglycerides and cholesterol), insulin resistance and a proinflammatory state.

Multiple studies have shown that obesity is associated with increased severity of influenza A, higher viral titers in exhaled breath and prolonged transmission of the virus, according to the report.

Changes in the viral population may abet the emergence of more pathogenic influenza variants, according to the report. Despite the fact that influenza vaccines generate robust antibody titers in obese subjects, obesity doubles the likelihood of developing influenza.

As with influenza virus, the Centers for Disease Control and Prevention recently recognized obesity as a risk factor for severe illness caused by SARS-CoV-2.

"This is not surprising because excess body weight and fat deposition apply pressure to the diaphragm, which further increases the difficulty of breathing during a viral infection," the researchers write.

But the risk goes beyond the burden of excess weight. A recent study highlighted in the literature review looked at 174 diabetes patients with confirmed cases of COVID-19. The study found that these patients were at significantly higher risk for severe pneumonia compared to non-diabetic COVID-19 patients. CT scans revealed a greater severity of lung abnormalities in these patients.

There was also a profound increase in serum IL-6 levels, a predictive biomarker for disease severity, the investigators write. These data imply that SARS-CoV-2 causes severe disease in obese patients and in those with T2DM by inducing bilateral pneumonia and a cytokine storm that damages the lung epithelial-endothelial barrier.
However, one hypothetical risk for patients with T2DM who have hypertension or heart disease appears not to be a problem, after all, according to the report. These patients are commonly treated with angiotensin-converting enzyme (ACE) inhibitors or angiotensin receptor blockers (ARBs). These increase expression of ACE2, the receptor that SARS-CoV-2 uses to gain entry into cells.

Clinicians and researchers were initially concerned that ACE inhibitors and ARBs could promote adhesion and entry of SARS-CoV-2 into host cells, thereby increasing the risk of severe COVID-19. Contrary to concerns, multiple studies now suggest that ACE inhibitors and ARBs do not lead to poorer outcomes in COVID-19 infection.

"Future research should seek to [determine] how metabolic abnormalities increase viral pathogenesis, as this information will play an essential role in global preparedness against emerging seasonal and pandemic virus strains," the investigators conclude.

ASM is keeping the pulse on the SARS-CoV-2 pandemic with the COVID-19 Research Registry of top-ranked research articles curated by experts. In the eye of a pandemic, this curated database will ensure that scientists, journalists and the public have an efficient way to find the timeliest and most valuable SARS-CoV-2/COVID-19 research from the latest journal articles and preprints.

The American Society for Microbiology is one of the largest professional societies dedicated to the life sciences and is composed of 30,000 scientists and health practitioners. ASM's mission is to promote and advance the microbial sciences.

ASM advances the microbial sciences through conferences, publications, certifications and educational opportunities. It enhances laboratory capacity around the globe through training and resources. It provides a network for scientists in academia, industry and clinical settings. Additionally, ASM promotes a deeper understanding of the microbial sciences to diverse audiences.

**COVID-19 antibody tests**

**New study ranks performance of available COVID-19 antibody tests (New Kerala: 2020717)**


A new peer-reviewed study by researchers at NSF International and Novateur Ventures finds significant variability in the accuracy of currently available COVID-19 antibody tests.

The study, 'COVID-19 Serological Tests How Well Do They Actually Perform?', has been published in the latest issue of the journal Diagnostics which is an international peer-reviewed open-access journal published monthly by the Multidisciplinary Publishing Institute (MDPI).
In the absence of vaccines and effective therapeutics for SARS-CoV-2 and the associated COVID-19 disease, reliable antibody testing can be a key element of public health policy to control further spread of the disease and gradually ease quarantine measures.

The study was co-authored by Robyn Meurant, Executive Director of Health Sciences for NSF International, Abdi Ghaffari, Advisor in Scientific affairs at Novateur Ventures and an Adjunct Associate Professor at the Department of Pathology and Molecular Medicine at Queen's University, and Ali Ardakani, Founder and Managing Director at Novateur Ventures.

The urgent need for the development of antibody diagnostic tests in response to the COVID-19 pandemic has compelled regulatory bodies to implement emergency use authorization programs to expedite the commercialization process of these tests.

"Granting FDA Emergency Use Authorization to several companies to accelerate the manufacturing of diagnostic tests was a good move. But it must be accompanied by informed and clear guidelines on preferred and minimally acceptable profiles of the COVID-19 antibody tests designed for a specific indication," said Ghaffari.

Published independent performance data of five CLIA (chemiluminescence immunoassay), 15 ELISA (enzyme-linked immunosorbent assay) and 42 RDT (rapid diagnostic test) antibody tests that are currently on the market were reviewed for this study to understand their limits and potential.

"No single assay can be used for all diagnostic use cases in the COVID-19 response for a country. What works well in one setting may be inappropriate or not accessible for another. As such, access to information on test performance, that is generated independently, greatly assists countries in informed decision-making," said Meurant.

The findings show significant variability in the accuracy of marketed tests and highlight several lab-based and point-of-care rapid diagnostic tests with high-performance levels in detecting SARS-CoV-2 specific antibodies. The findings of this review highlight the need for ongoing independent evaluations of commercialized COVID-19 diagnostic tests.

"Antibody testing is important to understand the extent of exposure for COVID-19 so it can be effectively monitored and treated. It is important for regional and national governments to continue their coordinated efforts to independently validate antibody test performance and also partner with industry to scale up manufacturing and production capacity," said Ardakani.

Thirteen top-performing COVID-19 antibody tests were identified in this study based on independent evaluations of their sensitivity (ability to correctly identify those with the disease) and specificity (ability to correctly identify those without the disease) data (>95 per cent accuracy).

In any infectious disease outbreak, accurate and accessible diagnostic testing must be one of the pillars of control measure policies to understand and minimize the spread of disease. The epidemiological studies of the outbreak in China estimated the proportion of undetected COVID-19 cases to be as high as 86 per cent. As asymptomatic or mild cases could play a significant role in the transmission and spread of the SARS-CoV-2 virus, symptoms alone are not reliable diagnostic markers.
There are two major types of diagnostic technologies available to address this molecular and antibody (sometimes called serological) tests. Currently, much of the focus is on the SARS-CoV-2 molecular test, which can detect, with high accuracy, the viral-specific RNA molecules circulating in the host body.

However, the molecular test is not useful in distinguishing between highly infective viruses versus ones that have been neutralized by the host, and it cannot assess immunity status against SARS-CoV-2.

Antibody tests can complement molecular-based tests in providing a more accurate estimate of SARS-CoV-2 incidence and potentially detect individuals with immunity against the disease as these tests detect markers of the immune response.

**New antiplatelet drug**

**New antiplatelet drug shows promise for treating heart attack (New Kerala: 2020717)**


Researchers have developed a new drug that prevents blood clots without causing an increased risk of bleeding, a common side effect of all antiplatelet medications currently available.

The study, published in the journal Science Translational Medicine, described the drug and its delivery mechanisms and shows that the drug is also an effective treatment for heart attack in animal models.

"Unfortunately, current antiplatelet medications prevent the blood clotting that causes heart attack and stroke but also disrupt platelets' ability to stop bleeding if a blood vessel is torn," said study researcher Xiaoping Du from the University of Illinois in the US.

"The magic of this new drug is it prevents clots but does not make people prone to bleeding, which other drugs have failed to do," Du added.

In a previous study, the research team identified a signalling mechanism that is important in the blood clotting process but not required for platelets' ability to adhere to a wound and prevent bleeding. Based on this finding, the researchers derived a peptide to target the signalling mechanism and designed a nanoparticle that successfully delivered the peptide into platelets.

The peptide-derived nanoparticle drug -- called M3mP6 high-loading peptide nanoparticle, of HLPN -- was then tested in mice as a possible treatment for heart attacks. Du said a heart attack can cause heart failure and death in two different ways. One, from the initial damage caused by the clot, which blocks blood flow and reduces oxygen supply.

This typically is treated by a procedure called angioplasty and a stent to open the artery, combined with antiplatelet drugs to prevent it from clotting again. However, fresh blood flowing into the damaged heart tissue following the reopening of the artery can trigger
inflammation, causing leaks and clots in small blood vessels and further damage to the heart, the researchers said.

"This is called reperfusion injury and this is the second way a heart attack can lead to heart failure or death," Du said. In the study, among mice that received the treatment, administered as an injection, there was reduced damage to the heart, reduced clotting and reduced inflammation. There also was improved heart function and improved survival.

"It is very exciting to see such promising results in the lab and we hope to one day test this in humans," Du said. "We were hopeful that this new drug, which does not cause blood vessel leaks, would help limit reperfusion injury and reduce the chance of heart failure and death," the study authors wrote.

Loneliness

New research highlights increased loneliness in over-70s during COVID-19 pandemic (New Kerala: 2020717)


New research highlights increased loneliness in over-70s during COVID-19 pandemic
Dublin [Ireland], July 15: A new report examines issues of loneliness and social isolation in older adults. The report offers fresh insight into the experiences of those over 70 who were advised to 'cocoon' as part of public health measures to curtail the spread of the COVID-19 virus.
The report was published by researchers at the Irish Longitudinal Study on Ageing (TILDA) and ALONE. New data from ALONE documents increased feelings of loneliness, anxiety and isolation in older adults throughout the pandemic, is compared with experiences of loneliness and isolation in older adults before the COVID-19 outbreak.

Previous research into this area has shown that strong social ties may protect people from emotional distress, cognitive decline, and physical disability, while loneliness and social isolation can cause harm to physical and psychological wellbeing. Both loneliness and social isolation have been strongly associated with poorer quality of life and other measures of well-being.

The TILDA study offers unique insights into the health, habits and experiences of older adults living in Ireland through its longitudinal research, examining a variety of key areas that affect older adults such as physical and mental health as well as economic and social factors. Research from TILDA highlights the prevalence of loneliness and social isolation in its nationally representative survey of participants which gives a clear insight into the experiences of older people.

What does TILDA's research show prior to the pandemic?
- Over 70% of TILDA participants reported that they never or rarely feel lonely; less than 25% feel lonely some of the time while just 5% reported feeling lonely often.

- Of those living alone, 31% are rarely lonely, 32% sometimes lonely and 37% often lonely.

- Of those living with others, 49% are least lonely, 30% sometimes and 21% often lonely.

- Researchers point out that most older adults are not often lonely and appear quite resilient, while data from ALONE’s helpline suggest that the COVID-19 pandemic has taken a toll on older people.

The rise of loneliness in a pandemic

Measures introduced to curb the spread of the COVID-19 virus, including physical distancing, and self-isolation particularly affected those over 70 who were 'cocooning'; disrupting daily routines and social interactions with friends and family. Following the outbreak of the virus, ALONE’s Support and Telephone Befriending service continued remotely with volunteers calling and sending regular texts to older people with health and well-being tips and practical supports. Almost 500 smartphones were distributed to older adults with limited means of social interaction. Following an increase in calls for support, ALONE established a dedicated phone line to provide help and services to vulnerable older adults who may have needed them. Report data from ALONE highlights increased feelings of loneliness and isolation amongst older people during the COVID-19 pandemic.

What does ALONE’s research show?

The ALONE national support line has received 26,174 calls during the period March 9th to July 5th, 2020.

- 55% of callers were from the over 70s, the cohort advised to 'cocoon'.

- 75% of callers to the helpline were living alone.

- There has been an increase in callers who are putting off medical treatment or examination, including after falls.

ALONE has seen a rise in callers reporting negative emotions, including suicidal ideation during the pandemic. Callers have most often requested support for their physical health, befriending, and emotional and mental health needs.

The data highlights that public health measures such as social distancing and cocooning to curb the spread of the virus has increased levels of loneliness and social isolation in older people. This may have a negative effect on the well-being of older adults and suggests that public policies should be developed to ensure that these issues are addressed. Researchers suspect that current physical distancing and social isolation measures will be most keenly felt by those who rely on community or church-based social participation and engagement.

A future research project led by TILDA in collaboration with ALONE will investigate and document the impact of the COVID-19 pandemic on the health and general well-being of older adults.
Professor Rose Anne Kenny, Principal Investigator of TILDA said

"This collaborative report between ALONE and TILDA offers a unique perspective into how older adults have been affected by the COVID-19 pandemic. TILDA research shows that most older adults are not often lonely and highlights the resilience of older adults as they adapt to an ever-changing world. The world has witnessed how older adults have been disproportionately affected by the pandemic. ALONE's research provides front-line evidence that shows the true toll public health measures have had on older people with increased feelings of loneliness, anxiety and isolation. The impact of the pandemic is now being studied in the TILDA cohort and will be reported later this year. This will more precisely inform the impact of COVID-19 on loneliness and social isolation, and areas for policy intervention."

Sean Moynihan, Chief Executive Officer of ALONE said

"ALONE's coordinated National Response to the COVID-19 pandemic allowed us to respond with immediacy to the concerns newly emerging, and existing issues being elevated from older people. We worked to keep all our services operative through the adaptation of their structures. The presence of this virus in society has further solidified existing issues while further alienating some older people, as we have seen extensive increases in loneliness through the isolation experienced from cocooning. We established a loneliness taskforce to ensure we were putting provisions in place to safeguard older people, presently, and into the future. Society needs to understand that loneliness can happen to anyone and can damage both your physical and mental health. It is distressing and we want to work towards breaking down this stigma. As Ireland's ageing population continues to develop, we must remember that there are several thousands of older people behind every percentage."

High-fat diet with antibiotic

Study reveals high-fat diet with antibiotic use linked to gut inflammation (New Kerala: 2020717)


A recent study has found that combining Western diet and antibiotic use may become a pre-irritable bowel syndrome (IBD) risk factor.

Irritable bowel syndrome (IBS) affects approximately 11% of people worldwide. It is characterized by recurring episodes of abdominal pain, bloating and changes in bowel habits. IBS patients with mucosal inflammation and changes in the gut's microbial composition are considered pre-IBD.

Antibiotic usage with a high-fat diet is a risk factor

The study included 43 healthy adults and 49 adult patients diagnosed with IBS. The researchers measured faecal calprotectin, a biomarker for intestinal inflammation, of participants. Elevated
levels of faecal calprotectin indicated a pre-IBD condition. The study identified 19 patients with IBS as pre-IBD.

The researchers found that all participants who consumed a high-fat diet and used antibiotics were at 8.6 times higher risk for having pre-IBD than those on a low-fat diet and no recent history of antibiotic use. Participants with the highest fat consumption were about 2.8 times more likely to have pre-IBD than those with the lowest fat intake. A history of recent antibiotic usage alone was associated with 3.9 times higher likelihood of having pre-IBD.

"Our study found that a history of antibiotics in individuals consuming a high-fat diet was associated with the greatest risk for pre-IBD," said Andreas Baumler, professor of medical microbiology and immunology and lead author on the study. "Until now, we didn't appreciate how different environmental risk factors can synergise to drive the disease."

Shutting the cell's powerhouse promotes gut microbial growth

Using mouse models, the study also tested the effect of high-fat diet and antibiotics use on the cells in the intestinal lining. It found that a high-fat diet and antibiotics cooperate to disrupt the work of the cell's mitochondria, shutting its ability to burn oxygen. This disruption causes a reduction in the cell's oxygen consumption and leads to oxygen leakage into the gut.

The body's beneficial bacteria thrive in environments lacking oxygen such as the large intestine. Higher oxygen levels in the gut promote bacterial imbalances and inflammation. With the disruption in the gut environment, a vicious cycle of replacing the good bacteria with potentially harmful proinflammatory microbes that are more oxygen tolerant begins. This, in turn, leads to mucosal inflammation linked to pre-IBD conditions.

The study also identified 5-aminosalicylate (mesalazine), a drug that restarts the energy factories in the intestinal lining, as a potential treatment for pre-IBD.

"The best approach to a healthy gut is to get rid of the preferred sustenance of harmful microbes," Lee said. "Our study emphasized the importance of avoiding high-fat food and abuse of antibiotics to avoid gut inflammation.

Coronavirus (Hindustan: 2020717)

https://epaper.livehindustan.com/imageview_200650_86211084_4_1_17-07-2020_0_i_1_sf.html
चिंता : भारत में कोरोना
मामले दस लाख के पार

60 दिन में नीलाम केजल बढ़े, मुंबई तो तिहाई घटी

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उन्मूलन जगतो स्थान

ऑप्शनल्ड कॉफ़ दक्षिणी

पहली वैक्सीन अगले में

सुरा प्रतिभा टूर्न में

पहली वैक्सीन अगले में

एक से सा करेगा आगाज

पसंदीदा स्थान

एक से सा करेगा आगाज होगा जो पाए जा सकता है।

63.25% मामलों के कोरोना से हो गए दिन, 63.25% मामलों के बहुत है।

पर्यावरण में संकट

कोरोना से सवार

पहली वैक्सीन अगले में

सुरा प्रतिभा टूर्न में

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एक से सा करेगा आगाज
Yoga and Physical Fitness ((Hindustan: 2020717)

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Rapid Antijan Test ((Hindustan: 2020717)

https://epaper.livehindustan.com/imageview_200652_86136722_4_1_17-07-2020_2_i_1_sf.html
दो सत्र में करीब 50 फीसदी की जिस्ताल दर्ज की गईं। एटेंटिव एंट्रेंज टेस्ट को ही कोरोना की स्तरीकृत जांच गान रहे लोगों के कर्तव्य में से घटी आटीपीसीआर जांच
नई दिल्ली | प्रमुख संवाददाता

राजधानी में कोरोना के बढ़ते मामलों को मद्देनजर उच्च न्यायालय ने गुरुवार को आईसीएमआर और एनएबीएल को निजी प्रयोगशालाओं और अस्पतालों को रैपिड एंटीजन और आरटीपीसीआर जांच करने की अनुमति देने की प्रक्रिया में तेजी लाने का आदेश दिया है।

इसके साथ ही न्यायालय ने राष्ट्रीय रोग नियंत्रण केंद्र को भी 27 जुलाई तक राजधानी में किए गए सीरी सर्विल्स टेस्ट की रिपोर्ट पेश करने का निर्देश दिया है। जर्सिस हीमा कोहली और एस प्रसाद की पीठ ने भारतीय आयुर्विज्ञान अनुसंधान परिषद (आईसीएमआर) और एनसीडीसी की ओर से दाखिल हलफानमे को स्वीकार करते हुए वह आदेश दिया है। हलफानमे में पिछली सुनवाई पर मांगी गई जानकारी पेश की गई है। पीठ ने यह बताया की यह बात है कि राजधानी में कितनी प्रयोगशालाओं और निजी अस्पतालों में रैपिड एंटीजन और आरटीपीसीआर टेस्ट हो रहे हैं। साथ ही सीरी सर्विल्स टेस्ट की रिपोर्ट के बारे में जानकारी मांगी थी। उच्च न्यायालय ने मंजूरी प्रक्रिया में लगाने वाले एक महीने के समय को बहुत अधिक बताया। साथ ही आईसीएमआर को इसे कम करने का निर्देश दिया है ताकि लोगों को जांच कराने के लिए प्रयोगशालाओं या अस्पतालों में जाने में परेशानी न हो।

उच्च न्यायालय अधिकारियों राकेश मल्होत्रा की ओर से दाखिल वाचिका पर सुनवाई कर रहा है।