



# DAILY NEWS BULLETIN

LEADING HEALTH, POPULATION AND FAMILY WELFARE STORIES OF THE DAY

Monday

20210201

## Coronavirus

### Scientists decode how coronavirus damages lung cells within hours (The Tribune: 20210201)

<https://www.tribuneindia.com/news/health/scientists-decode-how-coronavirus-damages-lung-cells-within-hours-205969>

The virus even damages the cells' nuclear membranes within three to six hours after infection, which the team said was very surprising

Scientists decode how coronavirus damages lung cells within hours

Photo for representation only. Source: iStock.

Following months of interdisciplinary research assessing tens of thousands of lung cells infected with the novel coronavirus, scientists have created one of the most comprehensive maps to date of the molecular activities that are triggered inside these cells at the onset of the viral infection, an advance that may lead to the development of new drugs to combat COVID-19.

From their analysis, the scientists, including those from Boston University in the US, discovered close to 18 existing drugs approved by the US Food and Drug Administration (FDA) that could potentially be repurposed to combat COVID-19 soon after a person becomes infected.

They said five of these drugs could reduce the spread of the coronavirus in human lung cells by more than 90 per cent.

In the research, published in the journal Molecular Cell, the scientists simultaneously infected tens of thousands of lab-grown human lung cells with the SARS-CoV-2 virus, and tracked what happens in these cells during the moments after infection.

They said these engineered cells are not completely identical to the living, breathing cells inside our bodies, but are the “closest thing to it.”

“What makes this research unusual is that we looked at very early time points [of infection], at just one hour after the virus infects lung cells. It was scary to see that the virus already starts to damage the cells so early during infection,” said study co-author and virologist Elke Muhlberger from Boston University (BU).

According to the researchers, “the virus does wholesale remodelling of the lung cells.”

“It’s amazing the degree to which the virus commandeers the cells it infects,” said Andrew Emili, another co-author of the study from BU.

Since viruses cannot replicate themselves, they hijack the host cell machinery to make copies of its genetic material.

In the study, the scientists found that when SARS-CoV-2 takes over, it completely changes the cells’ metabolic processes.

The virus even damages the cells’ nuclear membranes within three to six hours after infection, which the team said was very surprising.

In contrast, “cells infected with the deadly Ebola virus don’t show any obvious structural changes at these early time points of infection, and even at late stages of infection, the nuclear membrane is still intact,” Muhlberger said.

The scientists explained that the cell’s nuclear membrane surrounds the nucleus, which holds the majority of the genetic information, and controls and regulates normal cellular functions.

With the nucleus compromised by the coronavirus, they said “things rapidly take a bad turn for the entire cell.”

The lung cells—which normally play a role in maintaining the essential gas exchange of oxygen and carbon dioxide that occurs when we breathe—die under this siege, the study noted.

According to the researchers, the cells also emit distress signals which boost inflammation as they die, triggering a cascade of biological activity that accelerates more cell death.

This eventually leads to pneumonia, acute respiratory distress, and lung failure, they explained.

“I couldn’t have predicted a lot of these pathways, most of them were news to me. That’s why our [experimental] model is so valuable,” said Andrew Wilson, one of the study’s senior authors. — PTI

## **COVID-19: India records 13,052 new cases**

## **COVID-19: India records 13,052 new cases, 127 fatalities (The Tribune: 20210201)**

<https://www.tribuneindia.com/news/health/covid-19-india-records-13-052-new-cases-127-fatalities-205912>

The total COVID-19 active cases remained below 2 lakh for the 12th consecutive day.

COVID-19: India records 13,052 new cases, 127 fatalities

The total COVID-19 active cases remained below 2 lakh for the 12th consecutive day. Reuters photo.

With 13,052 new coronavirus cases, India's COVID-19 tally has climbed to 1,07,46,183, while the number of people who have recuperated from the disease has surged to 1,04,23,125, according to the Union Health Ministry data updated on Sunday.

The national recovery rate has climbed to 96.99 per cent.

The death toll increased to 1,54,274 with 127 new fatalities, the data updated at 8 am showed. The number of people who have recuperated from the disease surged to 1,04,23,125. The COVID-19 case fatality rate stands at 1.44 per cent.

The total COVID-19 active cases remained below 2 lakh for the 12th consecutive day.

There are 1,68,784 active cases of coronavirus infections in the country which comprises 1.57 per cent of the total caseload, the data stated.

India's COVID-19 tally had crossed the 20-lakh mark on August 7, 30 lakh on August 23, 40 lakh on September 5 and 50 lakh on September 16. It went past 60 lakh on September 28, 70 lakh on October 11, crossed 80 lakh on October 29, 90 lakh on November 20 and surpassed the one-crore mark on December 19.

According to the ICMR, 19,65,88,372 samples have been tested up to January 30 with 7,50,964 samples being tested on Saturday.

The 127 new fatalities include 42 from Maharashtra, 18 from Kerala, 9 each from Chhattisgarh and West Bengal, 8 each from Delhi and Punjab.

A total of 1,54,274 deaths have been reported so far in the country including 51,042 from Maharashtra followed by 12,350 from Tamil Nadu, 12,213 from Karnataka, 10,849 from Delhi, 10,164 from West Bengal, 8,650 from Uttar Pradesh and, 7,153 from Andhra Pradesh.

The health ministry stressed that more than 70 per cent of the deaths occurred due to comorbidities.

“Our figures are being reconciled with the Indian Council of Medical Research,” the ministry said on its website, adding that state-wise distribution of figures is subject to further verification and reconciliation. —PTI

## **WHO**

### **WHO teams visits Wuhan food market in search of virus clues (The Tribune: 20210201)**

<https://www.tribuneindia.com/news/health/who-teams-visits-wuhan-food-market-in-search-of-virus-clues-205909>

The team members were seen walking through sections of the Baishazhou market — one of the largest wet markets in Wuhan

WHO teams visits Wuhan food market in search of virus clues

The convoy carrying the WHO team tasked with investigating the origins of the coronavirus disease (COVID-19) pandemic drives into Baishazhou market in Wuhan. Reuters photo.

A World Health Organisation team looking into the origins of the coronavirus pandemic on Sunday visited a market known to be the food distribution centre for the Chinese city of Wuhan during the 76-day lockdown last year.

The team members were seen walking through sections of the Baishazhou market — one of the largest wet markets in Wuhan — surrounded by a large entourage of Chinese officials and representatives.

The members, with expertise in veterinarian, virology, food safety and epidemiology, have so far visited two hospitals at the centre of the early outbreak — Wuhan Jinyintan Hospital and the Hubei Integrated Chinese and Western Medicine Hospital.

On Saturday, they also visited a museum exhibition dedicated to the early history of COVID-19.

The Geneva-based WHO said on Twitter last Thursday that the team plans to visit hospitals and markets like the Huanan Seafood Market, which was linked to many of the first cases. They also listed the Wuhan Institute of Virology and laboratories at facilities including the Wuhan Center for Disease Control.

The mission has become politically charged, as China seeks to avoid blame for alleged missteps in its early response to the outbreak.

A single visit by scientists is unlikely to confirm the virus's origins. Pinning down an outbreak's animal reservoir is typically an exhaustive endeavour that takes years of research including taking animal samples, genetic analysis and epidemiological studies.

One possibility is that a wildlife poacher might have passed the virus to traders who carried it to Wuhan. The Chinese government has promoted theories, with little evidence, that the outbreak might have started with imports of frozen seafood tainted with the virus, a notion roundly rejected by international scientists and agencies.— AP

## **New vaccines: Serum's Covovax**

### **New vaccines: Serum's Covovax likely by June (The Tribune: 20210201)**

<https://www.tribuneindia.com/news/health/new-vaccines-serums-covovax-likely-by-june-20574>

Serum Institute today said it had applied to the Drug Controller General of India for permission to start local trials of a new Covid-19 vaccine the country is developing in collaboration with American firm Novovax. The vaccine has been shown to be 89.3 per cent effective in UK trials.

Serum Institute CEO Adar Poonawala said: "Our partnership for a Covid vaccine with Novovax has published excellent efficacy results. We have applied to start trials in India. Hope to launch Covovax by June this year."

In a related development, American healthcare giant Johnson & Johnson said its Covid-19 vaccine candidate was 66 per cent effective overall in preventing moderate to severe Covid, 28 days after inoculation. The result was based on Phase-3 study involving nearly 44,000 participants.

Meanwhile, one year since it reported the first Covid case on January 30 last year, India has registered the highest recoveries at 96.98 per cent. Total active caseload has dropped to less than 1.7 lakh (1,69,824) today and only 1.58 per cent of the infected people are currently under treatment. Twenty seven states and UTs have weekly positivity rate less than the national average.

Over 35 lakh beneficiaries were vaccinated till Saturday morning under the countrywide exercise. In the last 24 hours, 5,71,974 people were vaccinated across 10,809 sessions.

## **COVID-19: Scientists develop new tool**

### **COVID-19: Scientists develop new tool that may help decontaminate viruses in aerosols (The Tribune: 20210201)**

<https://www.tribuneindia.com/news/health/covid-19-scientists-develop-new-tool-that-may-help-decontaminate-viruses-in-aerosols-205499>

Studies have found that novel coronavirus SARS-CoV-2 spreads via aerosols

Photo for representational purpose only. Scientists have engineered a new tool which exposes aerosolised virus particles to microwaves in a controlled manner, an advance that may lead to the development of novel methods to reduce the spread of the coronavirus.

Over the course of the COVID-19 pandemic, studies have found that the novel coronavirus SARS-CoV-2 spreads via aerosols that can be generated and spread through breathing, coughing, sneezing, or talking by infected individuals.

While previous studies have explored the use of electromagnetic energy to deactivate viruses in bulk fluids, the researchers, including those from the Air Force Research Laboratory in the US, said less work has been done to understand the role of microwaves in inactivating viral pathogens in aerosols.

In the current research, published in the journal *Physics of Fluids*, the scientists developed experimental tools capable of presenting electromagnetic waves to an aerosol mixture containing viruses.

They said the apparatus offers the ability to vary power, energy, and frequency of the electromagnetic exposure.

With further research, the scientists hope to better characterise the threshold levels of microwave energy needed to inactivate aerosolised viral particles and reduce their ability to spread infection.

They believe the new experimental design can provide the means to identify a wide variety of virus inactivation mechanisms.

According to the researchers, the systems are designed to prevent the release of microwaves into the work environment since at high levels the radiation could potentially interfere with diagnostic equipment and other electronics.

They plan to expose coronavirus surrogate—bovine coronavirus—to microwaves at frequencies ranging from 2.8 gigahertz to 7.5 gigahertz (GHz).

In comparison, commercial microwave ovens operate at around 2.45 GHz.

Explaining, the need for the surrogate virus, Brad Hoff, a co-author of the study from the Air Force Research Laboratory, said the bovine coronavirus is “similar in size and configuration to human coronavirus, but is safe to humans.”

“If shown to be effective, the use of microwaves may enable the potential for rapid decontamination not currently addressed by ultraviolet light or chemical cleaning for highly cluttered areas, while potentially operating at levels safely compatible with human occupancy,” Hoff added. PTI

## **Childhood trauma**

### **How childhood trauma is linked to multiple sclerosis (The Tribune: 20210201)**

<https://www.tribuneindia.com/news/health/how-childhood-trauma-is-linked-to-multiple-sclerosis-205486>

The researchers found that childhood stress in the mice triggered a prolonged release of norepinephrine

Childhood trauma could affect the trajectory of multiple sclerosis development and response to treatment in adulthood, a new study suggests.

Multiple sclerosis is a progressive autoimmune disease in which the body attacks and strips away the protective coating around neurons, resulting in a wide range of neurological symptoms.

In a mice-based study, researchers found that mice that had experienced stress when young were more likely to develop the autoimmune disorder and less likely to respond to a common treatment.

“Mice that had early-life trauma were more susceptible to experimental autoimmune encephalomyelitis (EAE) disease development and suffered prolonged motor paralysis with severe neuronal damage in the central nervous system, which we found was caused by a heightened immune response,” said researcher Yee Ming Khaw from the University of Illinois at Urbana-Champaign in the US.

In the study, published in the journal Nature Communications, the team studied a mouse model of multiple sclerosis.

The mice were genetically susceptible to experimental autoimmune encephalomyelitis, the model most widely used for studying MS.

The researchers watched the development and progression of EAE in mice that had been briefly separated from their mother and given a saline injection while young and compared it with mice that had not experienced the same stress.

The researchers traced the EAE triggers to the immune system—in particular, a receptor on immune cells that binds to the stress hormone norepinephrine.

The researchers found that childhood stress in the mice triggered a prolonged release of norepinephrine.

The receptor was activated for long periods of time, which led the cells to decrease its expression—leaving the immune system less equipped to respond to the stress and inflammation of EAE.

Importantly, mice that developed EAE after stress in their childhoods did not respond to treatment with interferon beta, one of the initial therapies most widely prescribed to individuals with multiple sclerosis. — IANS

## **Allopathic Combo (The Asian Age: 20210201)**

<http://onlinepaper.asianage.com/article/detailpage.aspx?id=15381219>

# *‘Allopathic drug combo may be effective in controlling diabetes’*

**New Delhi, Jan. 31:** Ayurvedic formulation BGR-34 along with allopathic drug glibenclamide may have a significant role in controlling diabetes, according to interim findings of a study conducted by doctors at AIIMS.

The findings hold importance given that people with diabetes are two to four times more likely than others to develop cardiovascular disease, deadly comorbidities that could put a person at a high risk of contracting Covid-19.

In the interim analysis of the animal experimental

study, doctors have found that the pace of diabetes growth can be halted if allopathic drug is integrated with BGR-34, a herbal formulation enriched with antioxidant properties which does not allow bad cholesterol to accumulate in the heart arteries.

To find the efficacy of BGR-34 with allopathic drug, AIIMS doctors gave the ayurveda formulation and allopathic medicine glibenclamide separately to one group and in combination to another group in the study.

It was found that the

combination group who were given ayurvedic BGR-34 and glibenclamide had more improvement in insulin levels than those given allopathic drug alone, according to the interim findings.

It also showed the cholesterol lowering (cardio protective) effect. The study also established that BGR-34 improved lipid profile in terms of triglycerides and levels of VLDL (very low density lipoprotein), thus showing that it can be safely taken with synthetic antidiabetic drugs. — PTI

## **Healthcare system**

### **Building a robust healthcare system (The Hindu: 20210201)**

<https://www.thehindu.com/opinion/op-ed/building-a-robust-healthcare-system/article33711368.ece>

With better governance, northern States can bring their health systems on a par with southern States

In the wake of the COVID-19 pandemic, there have been vociferous demands to strengthen the country's public health system. Many erudite articles have stressed the need to revamp the system quickly so that we are better prepared to handle such emergencies in the future. Once the present crisis is over, however, public health will go into oblivion, as usual. Governments are already behaving as if things are fine and enough has been done on the health front.

Not surprisingly, the efficacy of the public health system varies widely across the country since it is a State subject. How good a public health system is can easily be judged just by looking at certain health parameters such as Infant Mortality Rate, Maternal Mortality Ratio and Total Fertility Rate for which annual surveys are conducted through the Sample Registration System.

## **Ageing**

### **The problem of ageing dams (The Hindu: 20210201)**

<https://www.thehindu.com/opinion/op-ed/the-problem-of-ageing-dams/article33711348.ece>

India's ageing dams can threaten water security, affect farmers' income, and increase flooding

Dams and reservoirs are believed to secure our water needs for the future. However, data and studies show that they can threaten our water security. Here is how.

## **Heart disease**

### **Male breast cancer patients at increased risk of heart disease: Study (New Kerala 20210201)**

<https://www.newkerala.com/news/2021/18942.htm>

According to the findings of a new study, male breast cancer patients are at higher risk of cardiovascular disease.

The study was presented at the American College of Cardiology's Advancing the Cardiovascular Care of the Oncology Patient Virtual course.

"Due to the rarity of male breast cancer, there is no cardiovascular data from larger clinical trials or population studies. The lack of large data makes it even more important to individualize cardiovascular assessment and management based on each patient's unique oncologic, therapeutic and pre-existing cardiovascular risk profile to support them through cancer treatment into survivorship," said Michael Ibrahim, a fourth-year medical student at Georgetown University and one of the study authors.

Researchers from Georgetown Lombardi Comprehensive Cancer and MedStar Washington Hospital Center in Washington conducted a retrospective chart review of 24 male breast cancer patients evaluated at the medical centers. The patients were between 38 and 79 years old with 42 per cent being African American, 29 per cent being Caucasian, 4 per cent Hispanic and 25 per cent of another ethnicity. Half of the patients had a family history of breast cancer.

The majority of patients--79 per cent--had invasive ductal carcinoma, which is the most common type of breast cancer. Invasive ductal carcinoma occurs when cancer started in the breast ducts and spread into the surrounding breast tissue.

All patients underwent a mastectomy, while 4 per cent received anthracycline chemotherapy, 8 per cent received HER2-targeted therapy, 16 per cent received radiation and 71 per cent received hormone therapy. Six patients were diagnosed with a secondary primary malignancy and three with a third primary malignancy.

Researchers found 88 per cent of patients were overweight, 58 per cent had high blood pressure and 54 per cent had high cholesterol. Tachyarrhythmia, or an abnormally increased heart rate, preexisted in 8 per cent of patients and developed in 13 per cent of patients while undergoing treatment.

Two patients were found to have decreased ejection fraction or a decrease in how much blood the heart pumps out with each beat. Two patients developed heart failure--a chronic condition where the heart doesn't pump blood as well as it should--after treatment.

"How similar or dissimilar male and female breast cancer patients are in the fundamental, unanswered question. Contrary to most other medical conditions, data on breast cancer are driven from female patients. We extrapolate the evidence from female breast cancer patients, or the age-matched male general population, and apply it to the cardiovascular care for male breast cancer patients," Ibrahim said.

"However, in reality, we do not truly know the difference. For example, the median age of male breast cancer patients is older than their female counterparts. An older population could mean more cardiovascular comorbidities. More comorbidities could require more comprehensive and frequent serial monitoring. It is also unknown if the risk of cardiotoxicity from anthracycline

or HER-2 targeted therapy is greater or less in male versus female breast cancer patients, and more studies are warranted," Ibrahim added.

According to the researchers, the high prevalence of cardiovascular conditions in male breast cancer patients requires further investigation to better understand the risk of preexisting heart disease on long-term outcomes for these patients.

The findings also highlight the need for cardiologists and cardio-oncologists to be involved in male breast cancer treatment due to the common risk factors and potential cardiotoxic effects of breast cancer treatment.

Ibrahim added, "The field of cardio-oncology is well-positioned to ensure that cardiologists and oncologists work closely together to address both the patients' oncologic and cardiac concerns. Cardio-oncologists or cardiologists should pay close attention to the proposed treatment plan and be part of a multidisciplinary cancer care team to evaluate the patients' cardiovascular risk prior to and through cancer treatments."

According to Ibrahim, cancer patients are already surprised by their cancer diagnosis. Similar to the pretreatment consultation with radiation oncology, breast surgery, and medical oncology, an upfront cardiovascular risk assessment provides greater comfort and further minimizes psychological surprise with cardiovascular complications going into cancer treatment.

## **Heart surgeries**

### **'Covid effect' linked to fewer heart surgeries (New Kerala 20210201)**

<https://www.newkerala.com/news/2021/18734.htm>

The effects of the Covid-19 pandemic have resulted in a substantial decline in overall heart surgery volume and an unexplained increase in deaths after coronary artery bypass grafting in the US, says a new study.

"The pandemic has changed the world as we know it, causing a dramatic drop in adult cardiac surgery volume and worsening patient outcomes," said Tom Nguyen from the University of California, San Francisco.

For the study, the researchers queried the STS Adult Cardiac Surgery Database, a clinical outcomes registry for adult cardiac surgery, from January 1, 2018, to June 30, 2020, and The Johns Hopkins Covid-19 Dashboard from February 1, 2020, to January 1, 2021.

The researchers examined data from 717,103 adult cardiac surgery patients and more than 20 million Covid-19 patients in an effort to determine how the pandemic affected adult cardiac surgery on national and regional levels.

The results showed that there was a 53 per cent decrease nationwide in all adult cardiac surgery volume when compared to 2019 and 65 per cent fewer elective cases in the US.

The Covid-19 also impacted non-elective cases, resulting in a 40 per cent decrease, according to the findings presented at the 57th Annual Meeting of The Society of Thoracic Surgeons being held from January 29-31.

Though the data did not directly address the cause of increased mortality, many surgeons said they currently are limited to operating on only the most urgent coronary bypass cases and patients who tend to be sicker.

"These numbers should not serve as a deterrent to patients seeking care for chest pain or other cardiac symptoms," said Robbin Cohen from Keck School of Medicine of the University of Southern California in Los Angeles, who was not directly involved with this study.

"If anything, they are a warning to get into the system as soon as possible."

The total number of global coronavirus cases has topped 102.5 million, while the deaths have surged to more than 2.21 million, according to the Johns Hopkins University.

The US is the worst-hit country with the world's highest number of cases and deaths at 26,067,807 and 439,420, respectively, according to the data.

## **Blood disorders**

### **Researchers develop gene therapy vector for blood disorders (New Kerala 20210201)**

<https://www.newkerala.com/news/2021/18603.htm>

Researchers at Children's Hospital of Philadelphia (CHOP) have developed a potentially safer and more effective gene therapy vector for blood disorders.

The newly-developed gene therapy vector will focus on blood disorders like sickle cell disease and beta-thalassemia. It is being considered potentially safer and effective than those currently used in gene therapy trials for these conditions.

The findings of the study were published today in the journal 'Molecular Therapy'. The vector, an engineered vehicle for delivering functional copies of the hemoglobin gene to correct a genetic abnormality, leads to the production of more hemoglobin with a lower dose, minimising the risk of toxic side effects.

"These results have many potential benefits for the successful treatment of patients affected by beta-globinopathies like sickle cell disease and beta-thalassemia, including a better dose-response, a minimized chance of clonal expansion and tumorigenesis, a reduced cost of therapy, and a potentially reduced need for chemotherapy or radiation before beginning gene

therapy," said Laura Breda, PhD, research assistant professor at CHOP and first author of the paper.

"All of us in the CuRED Frontier Program at CHOP are dedicated to finding new and improved curative therapies for blood disorders, and we look forward to taking steps to move this vector into clinical trials," added Breda.

Sickle cell disease and beta-thalassemia are genetic blood disorders caused by errors in the genes for hemoglobin, a protein consisting of globin and iron-containing subunits that are found in red blood cells and carries oxygen from the lungs to tissues throughout the body. The disorders, sometimes referred to as beta-globinopathies due to mutations in the beta-globin gene, lead to serious health complications, ranging from delayed growth and jaundice to pain crises, pulmonary hypertension, and stroke.

Because children with beta-globinopathies have two abnormal copies of the hemoglobin gene - one from each parent - researchers have explored gene therapy as a potential breakthrough treatment. Using an engineered carrier called a vector to introduce a functional copy of the beta-globin gene, this therapy has the potential to restore normal hemoglobin production in patients with beta-globinopathies.

However, there are challenges to this approach, including limited dose-response, dose-related toxicities, and the need in many cases for myeloablation, a procedure in which the bone marrow is suppressed via chemotherapy or radiation before gene therapy can begin.

In order to reduce unwanted side effects and increase the effectiveness of gene therapy for these conditions, the CHOP researchers developed a new vector using an engineered lentivirus, the same retrovirus used to create gene therapy vectors in ongoing gene therapy trials for beta-globinopathies.

The lentiviral vectors currently in use all contain the human beta-globin gene along with its promoter; three so-called hypersensitive sites that are important for gene transcription; and a truncated version of intron 2, which does not code for proteins.

The CHOP researchers hypothesized that including the full intron, rather than a truncated one, in addition to other genomic elements that promote uniform expression of the beta-globin gene would enhance beta-globin - and thus functional hemoglobin - expression.

Based on this hypothesis, the research team generated five novel lentiviral vectors by combining different additional genomic elements. As a benchmark, they also generated three vectors similar to those that have already been used in clinical trials, which they used to compare to their novel vectors.

Using a variety of in vitro and in vivo screening approaches, the researchers found that one of their vectors, ALS20, expressed significantly higher transgenic hemoglobin levels than other vectors currently used to treat beta-globinopathies.

Compared with the three benchmark vectors, ALS20 produced 157 per cent, 84 per cent, and 40 per cent more adult hemoglobin, which would have a greater clinical impact on patients, especially those who require higher hemoglobin production to become transfusion independent. ALS20 was also more powerful, with a lower dose providing higher hemoglobin production, which could reduce the need for myeloablation and possibly allow for in vivo delivery methods.

From a safety standpoint, ALS20 viral particles did not contain unwanted genomic RNA byproducts, and mice treated with ALS20 exhibited normal physiology without any proliferative disorders or cancerous formations compared with controls.

"Considering the body of evidence presented in this work, we believe that ALS20 is an outstanding candidate for the successful treatment of beta-globinopathies," said senior author Stefano Rivella, PhD, Kwame Ohene-Frempong Chair on Sickle Cell Anemia, and Professor of Pediatrics at CHOP.

"Our vector may not only provide safer therapy with a reduced probability of genome toxicity and milder conditioning requirements, but it may also improve the efficacy and offer a competitive product for the gene therapy market," concluded Rivella.

## **Post-traumatic stress disorder**

### **Study suggests brain training may help in treating post-traumatic stress disorder (New Kerala 20210201)**

<https://www.newkerala.com/news/2021/18527.htm>

Neurofeedback, also called 'brain training' may be an effective treatment for individuals with post-traumatic stress disorder (PTSD), suggests a new study.

The findings of the study were published in the journal 'NeuroImage Clinical'. Neurofeedback consists of exercises where individuals regulate their own brain activity.

In the study from Lawson Health Research Institute and Western University, researchers have found that neurofeedback may be an effective treatment for individuals with post-traumatic stress disorder (PTSD).

"Brain connectivity involves different parts of the brain communicating with each other and helps to regulate states of consciousness, thought, mood and emotion," explained Dr. Ruth Lanius, a scientist at Lawson, professor at Western's Schulich School of Medicine and Dentistry, and psychiatrist at London Health Sciences Centre.

"Individuals with PTSD tend to have disrupted patterns of brain connectivity, but our research suggests they can exercise their brains to restore patterns to a healthy balance," added Lanius.

Neurofeedback uses a system called a neurofeedback loop in which a person's brain activity is measured through sensors placed on the scalp and displayed back to them using a computer interface. This allows the individual to complete exercises and visually see the results.

The trial tested neurofeedback with a total of 72 participants, including 36 participants with PTSD and 36 healthy control participants. Of those with PTSD, 18 were randomized to participate in neurofeedback treatment while the other 18 acted as a comparison group.

The study found that the severity of PTSD symptoms decreased in participants randomized to receive neurofeedback treatment. After treatment, 61.1 per cent of participants no longer met the definition for PTSD. This remission rate is comparable to gold standard therapies like trauma-focused psychotherapy.

The research team also used functional magnetic resonance imaging (fMRI) at St. Joseph's Health Care London to capture brain scans of participants both before and after participation in the trial. They found that individuals with PTSD experienced positive changes in brain connectivity in the salience network and the default mode network following neurofeedback treatment.

"The salience network is involved in detecting threat as part of the 'fight or flight' response. It is normally hyperactive in individuals with PTSD. Meanwhile, the default mode network is activated during rest and is involved in autobiographical memory. We often see that this network is less active during rest and functionally disrupted among individuals with PTSD," said Dr. Andrew Nicholson, an affiliated scientist at Lawson.

"Neurofeedback helped restore the functional connectivity of both networks to healthier levels," added Nicholson.

The study involved weekly sessions of neurofeedback over 20 weeks. Participants were asked to reduce the intensity of the brain's dominant brain wave - the alpha rhythm. Brain activity was visualized as either a still cartoon or a distorted picture. If the alpha rhythm was successfully reduced, the cartoon started playing or the picture started becoming clearer.

"Participants were not instructed on how to reduce the alpha rhythm. Rather, each individual figured out their own way to do so," noted Dr. Lanius. "For example, individuals reported letting their mind wander, thinking about positive things or concentrating their attention."

The team noted the treatment could have a number of clinical implications following further validation.

"Neurofeedback could offer an accessible and effective treatment option for individuals with PTSD. The treatment is easily scalable for implementation in rural areas and even at home," said Dr. Lanius.

## **Alzheimer's disease**

### **Study links obesity with exacerbated effects of Alzheimer's disease (New Kerala 20210201)**

<https://www.newkerala.com/news/2021/18414.htm>

While people who are overweight may face a number of health issues, a recent study has discovered that being obese is an additional burden on brain health and may exacerbate Alzheimer's disease.

The pioneering multimodal neuroimaging study revealed obesity may contribute toward neural tissue vulnerability, whilst maintaining a healthy weight in mild Alzheimer's disease dementia could help to preserve brain structure.

The findings, published in 'The Journal of Alzheimer's Disease Reports', also highlight the impact being overweight in mid-life could have on brain health in older age.

"More than 50 million people are thought to be living with Alzheimer's disease and despite decades of groundbreaking studies and a huge global research effort we still don't have a cure for this cruel disease," lead author of the study, Professor Annalena Venneri from the University of Sheffield's Neuroscience Institute and NIHR Sheffield Biomedical Research Centre, said.

"Prevention plays such an important role in the fight against the disease. It is important to stress this study does not show that obesity causes Alzheimer's, but what it does show is that being overweight is an additional burden on brain health and it may exacerbate the disease," Venneri added.

"The diseases that cause dementia such as Alzheimer's and vascular dementia lurk in the background for many years, so waiting until your 60s to lose weight is too late. We need to start thinking about brain health and preventing these diseases much earlier. Educating children and adolescents about the burden being overweight has on multimorbidities including neurodegenerative diseases is vital," she further said.

Researchers from the University of Sheffield and the University of Eastern Finland examined MRI brain scans from 47 patients clinically diagnosed with mild Alzheimer's disease dementia, 68 patients with mild cognitive impairment, and 57 cognitively healthy individuals.

The novel study used three complementary, computational techniques to look at the anatomy of the brain, blood flow, and also the fibres of the brain. The international team compared multiple brain images and measured differences in local concentrations of brain tissues to assess grey matter volume - which degenerates during the onset of Alzheimer's - white matter integrity, cerebral blood flow, and obesity.

In mild dementia patients, a positive association was found between obesity and grey matter volume around the right temporoparietal junction. This suggests obesity might contribute toward neural vulnerability in cognitively healthy individuals and those with mild cognitive impairment.

The study also found that maintaining a healthy weight in mild Alzheimer's disease dementia could help preserve brain structure in the presence of age and disease-related weight loss.

"Weight-loss is commonly one of the first symptoms in the early stages of Alzheimer's disease as people forget to eat or begin to snack on easy-to-grab foods like biscuits or crisps, in place of more nutritional meals," joint author of the study, Dr. Matteo De Marco from the University of Sheffield's Neuroscience Institute, said.

"We found that maintaining a healthy weight could help preserve brain structure in people who are already experiencing mild Alzheimer's disease dementia. Unlike other diseases such as cardiovascular disease or diabetes, people don't often think about the importance of nutrition in relation to neurological conditions, but these findings show it can help to preserve brain structure," Marco added.

## HealthCare Services (Hindustan: 20210201)

[https://epaper.livehindustan.com/imageview\\_610871\\_87069188\\_4\\_1\\_01-02-2021\\_3\\_i\\_1\\_sf.html](https://epaper.livehindustan.com/imageview_610871_87069188_4_1_01-02-2021_3_i_1_sf.html)

# इलाज की बजाय खराब उपचार से ज्यादा मौत

नई दिल्ली | मदन जैड़ा

देश में स्वास्थ्य सेवाओं की कमजोर स्थिति और खराब गुणवत्ता पर आर्थिक सर्वेक्षण में किए गए उल्लेख चौंकाते वाले हैं। इसके मुताबिक देश में इलाज नहीं मिलने के कारण होने वाली मौतों से ज्यादा खराब इलाज से होने वाली मौतें हैं। इसलिए ब्रिटेन की भांति स्वास्थ्य सेवाओं की गुणवत्ता सुनिश्चित करने के लिए प्रभावी मानक तय करने पर जोर दिया गया है।

रिपोर्ट में वर्ष 2018 के आंकड़ों का हवाला देते हुए कहा गया कि देश में

8.38

लाख मौत स्वास्थ्य सेवा न होने से 2018 में

15.99

लाख मौत खराब इलाज के कारण, साल 2018 में

स्वास्थ्य सेवाओं की उपलब्धता न होने की तुलना में खराब इलाज के कारण दोगुनी मौत हुई। देश में खराब स्वास्थ्य सेवाओं के कारण प्रति एक लाख पर

## निजी अस्पतालों में मृत्यु दर अधिक

निजी क्षेत्र जहां शहरी क्षेत्रों में 74 फीसदी ओपीडी एवं 65 फीसदी अस्पताल सेवाएं प्रदान कर रहे हैं। पर वह विनियमित नहीं है। इसलिए निजी अस्पतालों में मृत्यु दर, पुनः भर्ती के मामले ज्यादा है। निजी अस्पतालों में नवजातों की मृत्यु दर 3.81 फीसदी है, जबकि सरकारी अस्पतालों में यह 0.61 फीसदी है। निजी अस्पताल में पुनः भर्ती होने वाले मरीज 70 फीसदी और सरकारी में 64 फीसदी है।

119-208 मौतें होती हैं। एम्स के पूर्व निदेशक डॉक्टर एमसी मिश्रा कहते हैं कि देश में बड़े पैमाने पर हो रही नकली दवाओं की बिक्री, कम

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छोटे शहरों में विशेषज्ञ डॉक्टर और प्रशिक्षित नर्सों की कमी है। इसलिए उपयुक्त इलाज नहीं मिल पाना मौत का कारण बन जाता है।

- प्रो. जुगलकिशोर, निदेशक, कम्युनिटी मेडिसीन, महावीर मेडिकल कॉलेज

गुणवत्ता वाली दवाएं, अप्रशिक्षित डॉक्टरों और भिन्न-भिन्न पैथियों में होने वाले अपूर्ण इलाज के कारण भी ऐसी स्थिति पैदा होती है।

## Budget 2021 for health sector

**Budget 2021 for health sector: बजट में आम आदमी की सेहत का खास खयाल, पीएम आत्मनिर्भर स्वास्थ्य योजना समेत ये तोहफे (Navbharat Times: 20210201)**

<https://navbharattimes.indiatimes.com/business/budget/budget-news/budget-2021-for-health-sector-modi-govt-started-atmanirbhar-health-scheme/articleshow/80625250.cms>

**Budget 2021 for health sector:** मोदी सरकार ने कोरोना को देखते हुए स्वास्थ्य क्षेत्र के लिए बजट में बढ़ोतरी की है और एक खास स्कीम भी चलाई है। बजट के जरिए आत्मनिर्भर स्वास्थ्य योजना का तोहफा देश के लोगों के दिया। सरकार इसमें अगले 6 सालों में करीब 61 हजार करोड़ रुपये खर्च करेगी।

**Budget 2021 for health sector:** कोरोना काल में इस बात की उम्मीद जताई जा रही थी कि हेल्थ सेक्टर को मोदी सरकार की तरफ से कुछ ना कुछ खास मिलेगा। मोदी सरकार ने कोरोना को देखते हुए स्वास्थ्य क्षेत्र के लिए बजट में बढ़ोतरी की है और एक खास स्कीम भी चलाई है। मोदी सरकार ने बजट के जरिए आत्मनिर्भर स्वास्थ्य योजना का तोहफा देश के लोगों के दिया।

वित्त मंत्री निर्मला सीतारमण ने कहा कि सरकार इस मद में अगले 6 सालों में करीब 61 हजार करोड़ रुपये खर्च करेगी। उन्होंने बताया कि इसके तहत प्राइमरी लेवल से लेकर उच्च स्तर तक की स्वास्थ्य सेवाओं पर खर्च किया जाएगा। नई बीमारियों पर भी फोकस होगा, जो नेशनल हेल्थ मिशन से अलग होगा।