Treatment options for COVID-19?

What are the treatment options for COVID-19? (The Tribune: 20201021)


A panel of experts convened by the National Institutes of Health updates guidelines as new studies come out.

What are the treatment options for COVID-19?

There are several, and which one is best depends on how sick someone is.

For example, steroids such as dexamethasone can lower the risk of dying for severely ill patients. But they may do the opposite for those who are only mildly ill.

In the United States, no treatments are specifically approved for COVID-19, but a few have been authorized for emergency use and several more are being considered.

A panel of experts convened by the National Institutes of Health updates guidelines as new studies come out.

Here's what's advised for various patients:

—Not hospitalized or hospitalized but not needing extra oxygen: No specific drugs recommended, and a warning against using steroids.

—Hospitalised and needing extra oxygen but not a breathing machine: The antiviral drug remdesivir, given through an IV, and in some cases also a steroid.

—Hospitalised and on a breathing machine: Remdesivir and a steroid.

What about convalescent plasma, an infusion of blood from a COVID-19 survivor that contains antibodies that fight the virus? Not enough is known to recommend for or against it, the guidelines say.
However, enough is known to advise against hydroxychloroquine and certain drugs that affect the immune system—multiple studies have found them ineffective against the coronavirus.

Aside from drugs, doctors have learned more about ways to treat hospitalised patients, such as putting them on their bellies and other measures that may prevent the need for breathing machines. — AP

Plasma therapy

Severe COVID-19 patients may be the best donors for plasma therapy: Study (The Tribune: 20201021)


They examined samples of plasma from the 126 recovered patients using several tests

Severe COVID-19 patients may be the best donors for plasma therapy: Study
Photo for representation only. Source: iStock.

COVID-19 patients who are sick enough to be hospitalised are likely to have high levels of antibodies that can protect against the disease, and may be the best donors for convalescent plasma therapy, according to a study.

The research, published on Monday in the Journal of Clinical Investigation, also found that older males who have recovered from COVID-19 after having been hospitalised are strong candidates for donating plasma.

Doctors have been using infusions of plasma—the part of blood that contains antibodies—from recovered COVID-19 patients to treat COVID-19 patients and also as a possible prophylaxis to prevent the disease, the researchers said.

Clinical trials of convalescent plasma treatment against COVID-19 are ongoing, and doctors until now haven't had guidance for selecting survivors who are likeliest to have strong antibody responses, they said.

"We propose that sex, age, and severity of disease should be used to guide the selection of donors for convalescent plasma transfer studies because we found that these were significant patient characteristics that not only predicted the amount of antibody but the quality of that antibody," said Sabra Klein, a professor at Johns Hopkins Bloomberg School of Public Health in the US.
The researchers tested the blood of 126 COVID-19 survivors and found high variability in their antibody levels and their antibodies' ability to neutralise the COVID-19-causing coronavirus, SARS-CoV-2.

Three factors were associated with stronger antibody responses: having been sick enough with COVID-19 to be hospitalised, being older, and being male, they said.

Initial studies of recovered COVID-19 patients have revealed a significant variability in their antibody responses to the virus—some survivors having very weak responses that would almost certainly be ineffective in helping new patients.

The researchers in the new study looked for factors that might help explain some of that variability and guide clinicians to the patients most likely to have high levels of SARS-CoV-2 neutralizing antibodies.

They examined samples of plasma from the 126 recovered patients using several tests.

These included tests of the plasma's ability in cell cultures to neutralise cell-to-cell infection with SARS-CoV-2, as well as commercial tests for levels of antibodies to the coronavirus's spike protein that studs the surface of coronavirus particles and allows the virus to attach to and infiltrate human cells.

Consistent with several prior studies, the researchers found considerable variability among the subjects in their spike-protein antibody levels and plasma coronavirus-neutralisation potency.

On average, the plasma of survivors who had been hospitalised with COVID-19 had markedly more anti-spike protein antibodies and neutralised the virus more effectively -- suggesting that disease severity prompts a stronger immune response.

"We know that the magnitude of antibody responses correlates with disease severity in other infectious diseases, such as active tuberculosis," Klein said.

Older age and male sex, which prior studies in both China and Europe have shown are associated with more severe COVID-19, were also associated with stronger antibody responses, though these links were weaker than for hospitalisation status. PTI

**Daily mouthwash**

**Daily mouthwash may inactivate human coronaviruses: Study (The Tribune: 20201021)**


A research team tested several oral and nasopharyngeal rinses for their ability to inactivate human coronaviruses similar in structure to SARS-CoV-2
Daily mouthwash may inactivate human coronaviruses: Study

In a fight against the novel coronavirus, scientists have found that certain oral antiseptics and mouthwashes may have the ability to inactivate human coronaviruses.

The results, published in the Journal of Medical Virology, indicate that some of these products might be useful for reducing the amount of virus in the mouth after infection and may help to reduce the spread of SARS-CoV-2, the coronavirus that causes Covid-19.

“While we wait for a vaccine to be developed, methods to reduce transmission are needed. The products we tested are readily available and often already a part of people’s daily routines,” said study researcher Craig Meyers from the Penn State University in the US.

During the study, the research team tested several oral and nasopharyngeal rinses in a laboratory setting for their ability to inactivate human coronaviruses, which are similar in structure to SARS-CoV-2.

The products evaluated include a one per cent solution of baby shampoo, peroxide sore-mouth cleansers and mouthwashes.

The researchers found that several of the nasal and oral rinses had a strong ability to neutralise human coronavirus, which suggests that these products may have the potential to reduce the amount of virus spread by people who are COVID-19 positive.

They used a test to replicate the interaction of the virus in the nasal and oral cavities with the rinses and mouthwashes.

They treated solutions containing a strain of human coronavirus, which served as a readily available and genetically similar alternative for SARS-CoV-2, with the baby shampoo solutions, various peroxide antiseptic rinses and various brands of mouthwash.

They allowed the solutions to interact with the virus for 30 seconds, one minute and two minutes before diluting the solutions to prevent further virus inactivation.

According to Meyers, the outer envelopes of the human coronavirus tested and SARS-CoV-2 are genetically similar so the research team hypothesises that a similar amount of SARS-CoV-2 may be inactivated upon exposure to the solution.

To measure how much virus was inactivated, the researchers placed the diluted solutions in contact with cultured human cells.

They counted how many cells remained alive after a few days of exposure to the viral solution and used that number to calculate the amount of human coronavirus that was inactivated as a result of exposure to the mouthwash or oral rinse that was tested.

The one per cent baby shampoo solution, which is often used by head and neck doctors to rinse the sinuses, inactivated greater than 99.9 per cent of human coronavirus after a two-minute contact time.
Several of the mouthwash and gargle products also were effective at inactivating the infectious virus. Many inactivated greater than 99.9 per cent of the virus after only 30 seconds of contact time and some inactivated 99.99 per cent of the virus after 30 seconds.

The results with mouthwashes are promising and add to the findings of a study showing that certain types of oral rinses could inactivate SARS-CoV-2 in similar experimental conditions, the study noted.

Recently, a study, published in the Journal of Infectious Diseases, found that Sars-Cov-2 viruses can be “inactivated” using commercially available mouthwashes. IANS

Covid-19: What you need to know today

Covid-19: What you need to know today (Hindustan Times: 20201021)

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

What does the handle of a water pump have to do with a counter to the Great Barrington Declaration, which has struck a chord with the Trump White House?

Dispatch 183 on October 15 referred to the Great Barrington Declaration. The operative part of this declaration is: “The most compassionate approach that balances the risks and benefits of reaching herd immunity is to allow those who are at minimal risk of death to live their lives normally to build up immunity to the virus through natural infection, while better protecting those who are at highest risk. We call this Focused Protection.”

In effect, the declaration, named after Great Barrington, Massachusetts, where it was drafted on October 4 at the American Institute of Economic Research — a libertarian think-tank that doesn’t really believe in the climate crisis — advocates herd immunity as the way out of the pandemic. It was authored by Dr Sunetra Gupta, an Indian-origin epidemiologist at Oxford University; Dr Jay Bhattacharya, also of Indian-origin, and a professor of medicine at Stanford; and Martin Kulldorf, a professor of medicine at Harvard. There’s no denying the academic credentials of the authors. And the declaration has its share of supporters; among others, Dr Scott Atlas, one of President Trump’s advisers, has supported the declaration. Atlas is Bhattacharya’s colleague at Stanford, and was in the news recently for claiming that masks are not effective in the fight against Covid in a tweet that pointed to an article by the American Institute of Economic Research that claimed this. Atlas subsequently walked back on his position, and over the weekend, Twitter removed his original tweet.

In response to the Great Barrington Declaration, another group of experts published the John Snow Memorandum in The Lancet on October 14.

This memorandum reinforces many of the truths we have come to know about Covid-19 (and which regular readers of this column and newspaper will be familiar with): that “Sars-CoV-2 spreads through contact... and longer-range transmission via aerosols, especially in conditions where ventilation is poor”; that it spreads rapidly across communities; that the fatality rate of
Covid-19 is higher than that of other flus; that there is such a thing as long Covid; that “it is unclear how long protective immunity lasts”; and, most importantly, that the “transmission of the virus can be mitigated through physical distancing, use of face coverings, hand and respiratory hygiene, and by avoiding crowds and poorly ventilated spaces”.

The memorandum also advocates the test-trace-isolate approach that many countries, including India, have adopted in their fight against Covid-19.

The authors speak of the dangers of any approach that pushes for herd immunity, pointing out that this is “unsupported by scientific evidence”, that “uncontrolled transmission in younger people risks significant morbidity and mortality across the whole population” and that a rash of infections could “overwhelm the ability of health care systems to provide acute and routine care”.

The John Snow Memorandum is named after a 19th century Englishman considered the founder of modern epidemiology. Urban legend has it that Snow curtailed a sharp outbreak of cholera in a part of London by identifying and removing the handle of a water pump in Soho, although, like most urban legends, the explanation is more nuanced. Snow’s contribution to epidemiology is actually far more significant — he conducted among the first known double-blind studies (when investigating the cholera outbreak, which he believed came from water supplied by a utility). In his seminal book On The Mode of Communication of Cholera (1855), Snow spoke of how he was able to conduct his study on a huge sample which was completely random (“three hundred thousand people of both sexes, of every age and occupation, and of every rank and station, from gentlefolks down to the very poor, were divided into two groups without their choice, and, in most cases, without their knowledge”) with one group getting water he suspected was unclean (because the companies supplying it sourced it from the Thames and didn’t treat it). Even today, the so-called randomised double-blind study is a valued technique in epidemiology, and such studies where one of the two groups is given a placebo form the basis of human clinical trials.

Jon or John, I’ve always been on the side of the Snows.

COVID-19 re-infection

COVID-19 re-infection possible if antibodies in recovered person reduce within 5 months: ICMR chief (New Kerala: 20201021)


There is a possibility of re-infection, if antibodies reduce in the body of a Covid-19 recovered person in five months time after the recovery, the Indian Council of Medical Research (ICMR) Director-General Dr Balram Bhargava said on Tuesday.
The ICMR DG remarks were made at a union health ministry briefing today, in which he urged people to continue to wear masks and follow coronavirus appropriate behaviour to curb the spread of COVID-19 in the country.

"After any infection, antibodies develop in the body. In case of coronavirus, it has been seen that the antibodies last for at least five months. The Covid-19 virus is still evolving and we are learning more about it. If antibodies decrease in the body of a person within five months, then there is a possibility of reinfection and a person may become re-infected with COVID-19. Hence, it is important to take precautions like wearing a mask, even after someone gets the disease once," Bhargava said.

The main symptoms of coronavirus infection are fever, cough and breathlessness, the ICMR official explained.

Commenting upon the World Health Organisation (WHO) Solidarity Trial, the ICMR chief said, "WHO solidarity trial is a 30-country trial in which India has been a participant and interim results of this have been put on the website, which has not yet been peer-reviewed. However, we find that these drugs (Remdesivir and HCQ) are not performing as good as it was expected.

"Discussions are being done at joint monitoring group and national task force of COVID19. We will take into cognizance the trial results and issue advisories accordingly," he said.

The trial was conducted from March 22 to October 4 and aimed to study the effects of these treatments on overall mortality, initiation of ventilation, and duration of hospital stay in hospitalized patients.

Previously, the trial arms for hydroxychloroquine and lopinavir were discontinued as primarily results had shown no benefit

The Solidarity Trial is the world's largest global randomized controlled trial in a pandemic situation for COVID-19 therapeutics, spanning 30 countries. India contributed one-tenth of the participants in the trial, said ICMR.

"For capping the price of corona treatment apex court has received several petitions. The Supreme Court has given directions the state and central government which are being followed," said Rajesh Bhushan, Union Health Secretary responding to a question related to fixing the price for Covid-19 treatment.
Virus can hit recovered Covid patients once antibodies start depleting: ICMR (New Kerala: 20201021)


Patients who have recovered from Covid-19 can again get infected by the virus once the antibodies of the viral disease starts depleting, the Indian Council of Medical Research (ICMR) said on Tuesday.

"According to the Centre for Disease Control (USA), you call it a reinfection (of Covid-19) if the person is reinfected after 90 days from turning negative to the Sars-CoV-2 after testing positive to it.

"However, there are multiple studies which suggest that the antibodies that develop after Covid-19 sustain for up to five months," said Balram Bhargava, Director-General of ICMR, while answering a query in the weekly press briefing of the Union Health Ministry.

"Since the disease is new, we do not have any further information about it. However, people can recontract the infection if antibodies start depleting from the body," he added.

Bhargava also stressed that one should not become complacent, and follow all precautionary measures such as wearing mask, staying cautious and not relying on antibodies to astray the re-contraction.

"Even after contracting the virus, one must not avoid using a mask," he cautioned.

Bhargava also informed that the ICMR is conducting an assessment on the subject of reinfection as commissioned by the Union Health Ministry, and its result will be out shortly.

Union Health Minister Harsh Vardhan had earlier informed that the ICMR had set up a committee of experts to study reported cases of reinfection among Covid-19 patients. However, he had termed some of the supposed cases of Covid reinfections that had been reported as "misclassified".

As per the ICMR, so far, three cases of reinfection have been reported in the country -- two from Mumbai and one from Ahmedabad. The apex body of medical research had also stated that the cut-off date for depletion of antibodies set by it for the assessment is 100 days from the infection.

"There are various cut-off days that are being referred to for reinfection. Though the public is going by up to 110 days, we are taking 100 days as the cut-off period because the antibodies last until then," Bhargava had said.

Virus can hit recovered Covid patients once antibodies start depleting: ICMR
Scientists have developed a new lab testing procedure for the detection of antibodies against SARS-CoV-2 that gives results more quickly than existing assays and specifically identifies so-called "neutralizing" antibodies - those that protect by blocking infection of cells.

"With many assays currently in use, we can detect antibodies, but that doesn't tell us if they're neutralizing antibodies. We only know the level of antibodies someone has," said study author Shan-Lu Liu from Ohio State University in the US.

"Some antibodies might be protective, some might not be protective, and some might even enhance infection - we know with this type of coronavirus and some other viruses, some antibodies can even do harm," he said.

"Our assay examines whether antibodies are potentially protective, which means they prevent a patient from reinfection and block viral replication. That's the outcome of infection that we want people to have," Liu added.

In analyses of blood samples from several different populations that had tested positive for Covid-19, the researchers found with this new assay that, overall, ICU patients had produced the highest concentration of neutralizing antibodies, and convalescent plasma donors and health care workers had the lowest antibody levels.

"Our assay could be used to tell whether antibodies have been developed in individuals who have had contacts with SARS-CoV-2," the researchers said in a paper published in the journal JCI Insight.

For the results, the researchers developed what is called a "pseudotype" virus-neutralizing antibody assay, in which an HIV vector and core is coated with the SARS-CoV-2 spike protein to detect antibodies against the coronavirus.

The team applied a new approach by selecting a different form of the light-producing enzyme that can be detected conveniently in culture media containing the virus-infected cells.

That choice saved several steps, and time, in the detection process without losing accuracy and sensitivity to the target virus.

The results showed that, in general, hospitalised patients - and ICU patients in particular - had the highest concentrations, or titers, of neutralizing antibodies in their systems.

However, over 14 per cent of those who had been hospitalized had no or very low levels of antibodies.
The assay detected no SARS-CoV-2 antibodies in the samples from people who had been sick with other types of respiratory diseases.

The test accuracy was further validated by verifying in a lab setting that the antibodies detected in the Covid-19 patient blood samples did in fact neutralize the authentic SARS-CoV-2 virus.

**Chronic kidney disease**

'Kids with chronic kidney disease have outsized health burden'(New Kerala: 20201021)


Chronically ill children with kidney disease may spend more time in the hospital, incur larger health care costs and have a higher risk of death compared to paediatric patients hospitalised for other chronic conditions, say researchers, including one of Indian-origin.

And one of the biggest drivers of these outcomes, the study published in the American Journal of Kidney Diseases found, is the level of medical complexity the young patients face.

Many children with chronic kidney disease also have multiple other chronic health conditions that adversely impact the outcomes, including cardiovascular disease, hypertension, diabetes and difficulties in growth.

"We wanted to improve our knowledge of this high-risk population in order to better support the needs of chronically ill children with kidney disease," said study author Zubin Modi from the University of Michigan in the US.

"Our findings suggest that these patients have very complex health needs, and we need to determine more effective ways to provide them with the care they need before, during and after hospitalisation," he added.

Chronic kidney disease includes long term abnormalities of kidney structure or function that may progress to end-stage kidney disease requiring dialysis or a transplant.

Children with the condition are also at risk for acute deteriorations in health secondary to an infection, dehydration, and side effects associated with medications.

The findings showed that children with chronic kidney disease spent about 30 per cent longer in the hospital with nearly 60 per cent more in hospital expenses.

Children with chronic kidney disease were also 50 per cent more likely to die during hospitalisation.

The high health care expenses for hospitalised paediatric patients with end-stage kidney disease, including dialysis, transplantation, and associated complications may be comparable to hospitalized heart failure patients, authors say.

Kidney disease may be associated with more medical complexities, the study authors said.

The causes of chronic kidney disease in children include genetic disorders, congenital anomalies that may be part of a multi-organ system syndrome, and systemic inflammatory disorders.

"We need further studies to better understand the health care needs and delivery of care to hospitalized children with chronic kidney disease in order to optimise health outcomes," the authors wrote.

Air pollution

**Air pollution may up risk of neurological disorders: Study**  (New Kerala: 20201021)


New research adds to the growing body of evidence that air pollution is significantly associated with an increased risk of hospital admissions for several neurological disorders, including Parkinson's disease, Alzheimer's disease, and other dementias.

For the study, published in the journal The Lancet Planetary Health, the research team analysed the link between fine particulate (PM2.5) pollution and neurodegenerative diseases in the US.

Particulate matter (PM2.5) -- tiny airborne particles smaller than 1/10,000 of an inch in diameter -- comes from various combustion-related sources including industrial emissions, transportation, wildfires and chemical reactions of pollutants in the atmosphere.

The researchers leveraged an unparalleled amount of data compared to any previous study of air pollution and neurological disorders.

"Our study builds on the small but emerging evidence base indicating that long-term PM2.5 exposures are linked to an increased risk of neurological health deterioration, even at PM2.5 concentrations well below the current national standards," said study author Xiao Wu from the Harvard University in the US.
During the study, the research team looked at 17 years’ worth (2000-2016) of hospital admissions data from 63,038,019 Medicare recipients in the US and linked these with estimated PM2.5 concentrations by zip code.

Taking into account potential confounding factors like socioeconomic status, they found that, for every five micrograms per cubic metre of air (μg/m³) increase in annual PM2.5 concentrations, there was a 13 per cent increased risk for first-time hospital admissions both for Parkinson's disease and for Alzheimer's disease and related dementias.

This risk remained elevated even below supposedly safe levels of PM2.5 exposure, which, according to current US Environmental Protection Agency standards, is an annual average of 12 μg/m³ or less.

Women, white people, and urban populations were particularly susceptible, the study found.

"Our study shows that the current standards are not protecting the ageing American population enough, highlighting the need for stricter standards and policies that help further reduce PM2.5 concentrations and improve air quality overall," the authors wrote.

**Coronavirus (Hindustan: 20201021)**

[https://epaper.livehindustan.com/imageview_393817_86201890_4_1_21-10-2020_4_i_1_sf.html](https://epaper.livehindustan.com/imageview_393817_86201890_4_1_21-10-2020_4_i_1_sf.html)
29 जुलाई को 48513 नए मामले आए थे, 24 घंटे में बीमारी से 587 और मौतें

सुखद : कोरोना संक्रमण के नए मामले 84 दिनों बाद सबसे कम

Diseases (Hindustan: 20201021)

https://epaper.livehindustan.com/imageview_393817_86202510_4_1_21-10-2020_4_i_1_sf.html
कोरोना से ठीक होने के बाद दूसरी बीमारियों की आशंका

वैज्ञानिकों ने दाबा किया है कि लोग कोरोना से ठीक होने के बाद भी दूसरी बीमारियों से धिर सकते हैं। ऑक्सफोर्ड विश्वविद्यालय के शोधकर्ताओं ने पाया कि कोरोना से ठीक हुए रोगियों में महीनों तक कुछ लक्षण रहते हैं।

कोरोना संक्रमण शरीर के चार अंगों में फैलता है, हृदय, किडनी और लीवर आदि को कमजोर कर देता है। इसलिए कोविड से उबरने के बाद भी विशेष सावधानी बरतना जरूरी है, अन्यथा वे अन्य बीमारियों से ग्रसित हो सकते हैं। ऑक्सफोर्ड के शोधकर्ताओं ने ब्रिटेन में एक छोटा अध्ययन किया था। अध्ययन के निष्कर्षों के अनुसार, कोरोना महामारी के आधे से अधिक रोगियों ने अपने प्रारंभिक संक्रमण के बाद दो से तीन महीने तक सांस की तकलीफ, थकान, चिंता और अवसाद जैसे लक्षणों का अनुभव किया है।