Insomnia

Weighted blankets found to improve sleep of insomnia patients (The Tribune: 2020928)


Positive results were maintained during a 12-month, open follow-up phase of the study

Weighted blankets found to improve sleep of insomnia patients

Using weighted chain blankets may lead to better sleep maintenance, a higher daytime activity level, and reduced symptoms of fatigue, depression and anxiety among insomnia patients with psychiatric disorders, says a study.

The researchers found that participants in the weighted blanket group were almost 26 times more likely to experience a decrease of 50 per cent or more in their insomnia severity compared with the control group, and they were nearly 20 times more likely to achieve remission of their insomnia.

Positive results were maintained during a 12-month, open follow-up phase of the study.

"A suggested explanation for the calming and sleep-promoting effect is the pressure that the chain blanket applies on different points on the body, stimulating the sensation of touch and the sense of muscles and joints, similar to acupressure and massage," said principle investigator Mats Alder, consultant psychiatrist at the Karolinska Institutet in Stockholm, Sweden.

"There is evidence suggesting that deep pressure stimulation increases parasympathetic arousal of the autonomic nervous system and at the same time reduces sympathetic arousal, which is considered to be the cause of the calming effect." The study, published in the Journal of Clinical Sleep Medicine, involved 120 adults previously diagnosed with clinical insomnia and a co-occurring psychiatric disorder: major depressive disorder, bipolar disorder, attention deficit hyperactivity disorder, or generalised anxiety disorder.
Participants were randomised to sleep for four weeks at home with either a chain-weighted blanket or a control blanket.

Participants assigned to the weighted blanket group tried an 8-kg chain blanket at the clinic. Ten participants found it to be too heavy and received a 6-kg blanket instead.

Participants in the control group slept with a light plastic chain blanket of 1.5 kg. Change in insomnia severity, the primary outcome, was evaluated using the Insomnia Severity Index.

Wrist actigraphy was used to estimate sleep and daytime activity levels.

Nearly 60 per cent of weighted blanket users had a positive response with a decrease of 50 per cent or more in their Insomnia Severity Index score from the baseline to the four-week endpoint, compared with 5.4 per cent of the control group.

Remission, a score of seven or less on the Insomnia Severity Index scale, was 42.2 per cent in the weighted blanket group, compared with 3.6 per cent in the control group.

After the initial four-week study, all participants had the option to use the weighted blanket for a 12-month follow-up phase.

Participants who switched from the control blanket to a weighted blanket experienced a similar effect as patients who used the weighted blanket initially, said the study. IANS

**Ovarian tumours**

**Women can conceive after ovarian tumours: Study (The Tribune: 2020928)**


The women who had given birth after FSS were followed for 76 months, while the women who had not given birth were followed for 58 months.

Researchers have found that women receiving fertility-sparing surgery for the treatment of borderline ovarian tumours are able to have children.

According to the study published in the journal 'Fertility & Sterility, natural fertility was preserved in most of them and only a small proportion required assisted reproductive treatment such as in vitro fertilisation.

"The ability to become pregnant seems to be preserved with fertility-sparing surgery, knowledge that is absolutely critical for the advice and treatment given to young women with
ovarian borderline tumours,” said study author Gry Johansen from the Karolinska Institutet in Sweden.

Earlier, studies of fertility-sparing surgery (FSS) for borderline ovarian tumours (BOT) have primarily focused on the oncological therapeutic outcome, and knowledge about pregnancy and childbirth after FSS has been scant.

In this study, researchers at the Karolinska Institute have also examined the effects of FSS on fertility in women of a fertile age treated for early-stage BOT.

The study is based on data from Sweden's healthcare registers. The selection included all women between the age of 18 and 40 who received FSS for early-stage BOT between 2008 and 2015, according to the Swedish Quality Registry for Gynaecologic Cancer (SQRGC).

The control group were peers with similar tumours treated with radical surgery. Of the 213 women who underwent FSS between 2008 and 2015 in Sweden, 23 per cent had given birth to 62 babies after treatment. A minority—20 women or 9 per cent of the cohort—had undergone IVF.

The women who had given birth after FSS were followed for 76 months, while the women who had not given birth were followed for 58 months. The survival rate for the entire cohort of 277 women was an excellent 99 per cent, and there was no difference between those who had received FSS and those who had undergone radical surgical cancer treatment.

"In the choice of treatment for borderline ovarian tumours, safety and the effectiveness for future childbearing must be taken into account," the study authors wrote. IANS

Homemade masks

Homemade masks release fibres into air, important to wash them: Scientists (The Tribune: 2020928)


They also found that a fraction of people are "superemitters" who give off many more particles than average

Homemade masks release fibres into air, important to wash them: Scientists
Photo for representational purpose only. Reuters file

While surgical and N95 masks cut down the amount of aerosolized particles emitted during breathing, talking and coughing, scientists say in the case of homemade cloth face coverings, the fabric which traps the droplets may release a large amount of fibres into the air, underscoring the importance of washing them.
The research, published in the journal Scientific Reports, noted that the use of masks and other face coverings has emerged as an important tool to reduce the spread of the novel coronavirus SARS-CoV-2.

But while evidence shows that face coverings generally reduce the spread of airborne particles containing the virus, the scientists, including those from the University of California Davis (UC Davis) in the US, noted that there is limited information on how well they compare with each other.

They set up experiments to measure the flow of particles from volunteers wearing masks while they performed "expiratory activities" including breathing, talking, coughing and moving their jaw as if chewing gum.

According to the scientists, these particles are small enough to float through the air over a considerable distance, but large enough to carry viruses such as the novel coronavirus which causes COVID-19.

They also found that a fraction of people are "superemitters" who give off many more particles than average.

In the study, 10 volunteers sat in front of a funnel in a laminar flow cabinet which drew air from in front of their faces into a device that measured the size and number of particles they exhaled.

One of the volunteers in the study was a superemitter who consistently produced nearly 100 times as many particles as the others when coughing, the scientists said.

The volunteers wore either no mask, a medical-grade surgical mask, two types of N95 mask (vented or not), a homemade paper mask or homemade one- or two-layer cloth mask made from a cotton T-shirt.

The study found that talking gave off about 10 times more particles than simple breathing without wearing a mask, and forced coughing produced a variable amount of particles.

In all the test scenarios, surgical and N95 masks blocked as much as 90 percent of particles, compared to not wearing a mask, the researchers said.

Face coverings also reduced airborne particles from the superemitter, the study noted.

However, the researchers said, homemade cotton masks actually produced more particles than not wearing a mask.

According to the scientists, these appeared to be tiny fibres released from the fabric.

Since the cotton masks produced particles themselves, they said it's difficult to tell if they also blocked exhaled particles, but added that they seemed to at least reduce the number of larger particles.
While masks are effective in reducing the spread of airborne particles, the scientists said it is also important to regularly wash cloth masks. PTI

Every 250th person on Earth now infected with coronavirus

Every 250th person on Earth now infected with coronavirus (The Tribune: 2020928)


Brazil currently accounts for the second highest number of fatalities at 140,537

The number of Covid-19 cases have surged to more than 32.4 million or 0.4 per cent of the Earth's total population—meaning nearly every 250th person has already contracted coronavirus.

The current world population is 7.8 billion (as of September 2020), according to the most recent United Nations estimates elaborated by Worldometer.

The number of active cases continues to rise rapidly, increasing by about 5 lakh this week. Active cases now account for 23.3 per cent of the overall case count.

Some 37,000 novel coronavirus-related deaths were registered in the past seven days, bringing the overall death toll to 983,000, Tass news agency reported on Saturday.

The World Health Organisation (WHO) has warned that the global coronavirus death toll could cross the two-million figure before an effective vaccine is widely used.

The number of Covid-19 deaths is fast approaching one million—nearly nine months after the outbreak started in China.

The US is the worst-hit country with the world's highest number of cases and deaths at 7,032,524 and 203,657, respectively, according to the Johns Hopkins University.

India comes in second place in terms of cases at 5,818,570, while the country's death toll soared to 92,290.

Brazil currently accounts for the second highest number of fatalities at 140,537.

In relative terms, the spread of the novel coronavirus worldwide has slowed down.
In the past seven days, the case count increased by 6.8 per cent, compared to 7.4 per cent the week before.

In the European continent, France is the most-affected country at the moment, reporting a weekly growth of almost 20 per cent.

The other top 15 countries with the maximum amount of cases are Brazil (4,689,613), Russia (1,131,088), Colombia (798,317), Peru (794,584), Mexico (720,858), Spain (716,481), Argentina (691,235), South Africa (668,529), France (552,421), Chile (453,868), Iran (439,882), the UK (425,766), Bangladesh (356,767), Iraq (341,699) and Saudi Arabia (332,329), according to the data from Johns Hopkins University. IANS

**Vitamin D**

**Vitamin D cuts complications, risk of death in Covid patients’ (The Tribune: 2020928)**


Being vitamin D sufficient also helps fight consequences from being infected by other viruses causing upper respiratory tract illnesses

‘Vitamin D cuts complications, risk of death in Covid patients’

Photo for representation

A new research adds to the growing body of evidence that patients with sufficient levels of Vitamin D are less likely to experience complications and die from Covid-19.

According to the study, published in the journal PLOS ONE, hospitalised Covid-19 patients who were vitamin D sufficient, with a blood level of 25-hydroxyvitamin D of at least 30 ng/mL (a measure of vitamin D status) had a significantly decreased risk for adverse clinical outcomes and death.

In addition, they had lower blood levels of an inflammatory marker (C-reactive protein) and higher blood levels of lymphocytes (a type of immune cell to help fight infection). "This study provides direct evidence that vitamin D sufficiency can reduce the complications, including the cytokine storm (release of too many proteins into the blood too quickly) and ultimately death from Covid-19,” said study author Michael F. Holick from the Boston University in the US.

For the findings, a blood sample to measure vitamin D status (measured serum level of 25-hydroxyvitamin D) was taken from 235 patients were admitted to the hospital with Covid-19.
These patients were followed for clinical outcomes including clinical severity of the infection, becoming unconscious, having difficulty in breathing resulting in hypoxia (low oxygen level) and death.

The blood was also analysed for an inflammatory marker (C-reactive protein) and for numbers of lymphocytes. The researchers then compared all of these parameters in patients who were vitamin D deficient to those who were vitamin D sufficient.

In patients older than 40 years they observed that those patients who were vitamin D sufficient were 51.5 per cent less likely to die from the infection compared to patients who were vitamin D deficient.

Holic believes that being vitamin D sufficient helps to fight consequences from being infected not only with the coronavirus but also other viruses causing upper respiratory tract illnesses including influenza.

“There is great concern that the combination of influenza infection and a coronal viral infection could substantially increase hospitalizations and death due to complications from these viral infections,” Holick noted.

Earlier this month, another study published in the journal JAMA Network Open, revealed that that vitamin D deficiency may raise the risk of getting novel coronavirus.— IANS

Global death toll may hit 2 million: WHO

Before vaccine comes, global death toll may hit 2 million: WHO (The Tribune: 2020928)


The number of Covid-19 deaths is fast approaching one million - nine months after the outbreak started in China

Before vaccine comes, global death toll may hit 2 million: WHO
Security personnel at an exhibition in Beijing. Reuters

The World Health Organization (WHO) warned that the global coronavirus death toll could hit two million before an effective vaccine is widely used.

WHO emergencies head Mike Ryan on Friday said the figure could be even higher without concerted international action, the BBC reported.
The number of Covid-19 deaths is fast approaching one million - nine months after the outbreak started in China.

Ryan also urged Europeans to ask themselves whether they had done enough to avoid the need for lockdowns.

He questioned whether all the alternatives had been implemented, like testing and tracing, quarantine, isolation, social distancing, wearing masks and hand-washing.

Earlier, Spain's capital Madrid brought another eight districts under tougher coronavirus restrictions, which now affect a million people in the city.

In France, staff from bars and restaurants in the southern city Marseille protested against the closure of their workplaces which was brought in on Saturday.

And in the UK, tougher restrictions were announced in several regions as new daily infections rise.

**Breast cancer**

**New analytical model detects mutations in breast cancer: Study (The Tribune: 2020928)**


Study published in the journal EMBO Molecular Medicine included results from over 3,200 patients

New analytical model detects mutations in breast cancer: Study
Researchers from Lund University in Sweden used breast tumours for analysis from the unique Swedish SCAN-B project.

Researchers have developed a computational model which is effective in detecting and identifying genetic mutations in breast tumours.
The study included results from over 3,200 patients with breast cancer.

The researchers used RNA sequencing, a sensitive, precise tool which has very gradually started to be applied clinically, although not yet for breast cancer.

The study, published in the journal EMBO Molecular Medicine, used breast tumours for analysis from the unique Swedish SCAN-B project.

"We hope that SCAN-B RNA sequencing will be in clinical use as early as next year, mainly to help in the identification of which breast tumours are high-risk and which are low-risk," said study researcher Lao Saal from Lund University in Sweden.
"The aim is for the patient to know, already a week after surgery to remove the tumour, which personalised treatment is best suited to the individual," Saal added.

When the Lund team analysed the genetic mutations in the breast tumours of the patients in the study, they found that almost 87 per cent had at least one mutation for which potential drugs already exist.

They then followed the patterns of mutations in the tumours and related them to patient outcomes.

"We observed that 34 per cent of them had a mutation in a specific gene, PIK3CA, and that in general these patients had a good prognosis," wrote the study researchers.

"In 3 per cent of the patients we found mutations in another gene, ERBB2, which was associated with a worse prognosis," they added.

The results of the study add another dimension to how RNA sequencing can be used as a potential future 'clinical tool'. IANS

**Passive COVID-19 vaccine**

**Highly effective coronavirus antibodies identified, may lead to passive COVID-19 vaccine**

The researchers noted that treating infectious diseases with antibodies has a long history (The Tribune: 2020928)


Highly effective coronavirus antibodies identified, may lead to passive COVID-19 vaccine

Berlin, September 25

Scientists have identified highly effective antibodies against the novel coronavirus, which they say can lead to the development of a passive vaccination for COVID-19.

Unlike in active vaccination, passive vaccination involves the administration of ready-made antibodies, which are degraded after some time.

However, the effect of a passive vaccination is almost immediate, whereas with an active vaccination it has to build up first, the researchers said.

The research, published in the journal Cell, also shows that some SARS-CoV-2 antibodies bind to tissue samples from various organs, which could potentially trigger undesired side effects.
The scientists at the German Center for Neurodegenerative Diseases (DZNE) and Charite - Universitätsmedizin Berlin isolated almost 600 different antibodies from the blood of individuals who had overcome COVID-19, the disease triggered by SARS-CoV-2.

By means of laboratory tests, they were able to narrow this number down to a few antibodies that were particularly effective at binding to the virus.

The researchers then produced these antibodies artificially using cell cultures.

The so-called neutralising antibodies bind to the virus, as crystallographic analysis reveals, and thus prevent the pathogen from entering cells and reproducing, they said.

In addition, virus recognition by antibodies helps immune cells to eliminate the pathogen. Studies in hamsters—which, like humans, are susceptible to infection by SARS-CoV-2—confirmed the high efficacy of the selected antibodies.

“If the antibodies were given after an infection, the hamsters developed mild disease symptoms at most. If the antibodies were applied preventively—before infection—the animals did not get sick,” said Jakob Kreye, coordinator of the research project.

The researchers noted that treating infectious diseases with antibodies has a long history.

For COVID-19, this approach is also being investigated through the administration of plasma derived from the blood of recovered patients. With the plasma, antibodies of donors are transferred, they said.

"Ideally, the most effective antibody is produced in a controlled manner on an industrial scale and in constant quality. This is the goal we are pursuing," said Momsen Reincke, first author of the research.

“Three of our antibodies are particularly promising for clinical development,” explained Harald Pruss, a research group leader at the DZNE and also a senior physician at Charite – Universitätsmedizin Berlin.

"Using these antibodies, we have started to develop a passive vaccination against SARS-CoV-2," Pruss said.

In addition to the treatment of patients, preventive protection of healthy individuals who have had contact with infected persons is also a potential application, the researchers said.

How long the protection lasts will have to be investigated in clinical studies, they said.

“This is because, unlike in active vaccination, passive vaccination involves the administration of ready-made antibodies, which are degraded after some time,” Pruss said. In general, the protection provided by a passive vaccination is less persistent than that provided by an active vaccination, the researchers said.

However, the effect of a passive vaccination is almost immediate, whereas with an active vaccination it has to build up first, they said.
“It would be best if both options were available so that a flexible response could be made depending on the situation,” Pruss added. PTI

Coronavirus disease (Covid-19) – Testing (Hindustan Times: 2020928)

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

**Why adequate testing is crucial for saving lives**

A higher proportion of the population is dying from the coronavirus disease (Covid-19) in states and union territories that test poorly despite a widespread outbreak, and thus have a higher positivity rate, according to data analysed by HT. This would mean that adequate testing, especially when the positivity rate in a region starts rising, forms a very crucial aspect of saving lives from the virus.

Covid-19: What you need to know today (Hindustan Times: 2020928)

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

The number of Covid-19 tests carried out in India continues to fluctuate wildly. On Saturday, only 987,861 tests were carried out in the country, 26% lower than the 1.34 million tests carried out the previous day. A day before, on September 24, India carried out 1.49 million tests; on September 23, the number was 1.15 million; and on September 22, 953,683.

As Dispatch 168 pointed out on September 26, this doesn’t help anybody — simply because there has been no pattern in India’s until then highly predictable Covid-19 numbers since September 10. That column added that because of this, the fact that the seven-day average of daily new cases fell by around 7,000 in the week to September 24 meant nothing.

On Saturday, Kerala’s positivity rate was 11.8%. The positivity rate is the number of people testing positive expressed as a percentage of those being tested. Karnataka’s positivity rate the same day was 12.9%, Madhya Pradesh’s 10.04%, Chandigarh’s 10.22%, Chhattisgarh’s 20.6%, Goa’s 25.3%, Maharashtra’s 21.3%, and Puducherry’s 10.8%. Together, these states and one Union territory accounted for almost one in every two cases of Covid-19 recorded on Saturday. Add Andhra Pradesh, which had a positivity rate of 9.6% on Saturday, to this group, and it emerges that almost 60% of the daily cases in India that day came from states with relatively high positivity rates.
This is another indicator that the infection isn’t really slowing in India (as much as I wish it were).

Some of these states (which are following the right testing strategy) are on a long plateau of positivity rates (more on this shortly), which means they are unlikely to see a sudden dip in cases, although, eventually, they will see a fall.

This is why I used the term relatively high to describe a positivity rate of around 10% — because a rate between 8% and 12% can actually be a good thing in states testing adequately and following the correct testing protocol. For instance, for weeks together, Tamil Nadu’s positivity rate ranged between 8% and 12%. The state was testing heavily and adequately, and its dependence on the highly unreliable rapid antigen tests was low to non-existent, yet its positivity rate didn’t fall. The state’s positivity rate trajectory was on a long plateau that’s typically seen in the case of cities, provinces and countries following the correct testing approach. It is only in recent weeks that the state’s positivity rate has fallen. On Saturday, for instance, it was 6%.

But other states (which are not following the right strategy) are not testing adequately. Positivity rates are complex and need to be understood in the correct context — in some cases, a moderately high positivity rate (10%) may be a sign of adequate testing; in other cases, a low rate or a high one may be sign of inadequate testing; and in still others, a low rate may well mean the infection in the region is in control. To resort to one of this writer’s oft-used refrains, it’s important to track the trajectory of positivity rates to understand them. Once again, Tamil Nadu’s trajectory is a text-book pattern — a rise with increased testing, then a plateau, and finally, a fall.

But positivity rates can also be skewed by the choice of tests — an inaccurate one, such as the rapid antigen test (it identifies many infected individuals as uninfected) can artificially push down the positivity rate. Dispatch 156, published on September 12, details the math of how this happens.

The worrying thing in Saturday’s numbers, from this writer’s perspective, is that Bihar’s positivity rate was less than 1% (actually 0.97%), and Uttar Pradesh’s 2.74%. Both states have high populations, poor public health systems and social indicators, and depend heavily on rapid antigen tests.

October and November is when India’s annual festive season peaks. It is a time for celebration (and people tired from months of lockdowns and restrictions are waiting to exhale) and consumption (something the flagging Indian economy badly needs).
Simultaneously, with half the school-year over, there is a growing clamour in certain quarters to reopen schools.

Decisions on what kind of celebrations can be allowed at this time, and whether schools should reopen need to be made on the basis of data and science — and there are far too many inconsistencies in recent data.

India’s apex medical research body ICMR and the Union health ministry need to investigate why data for the past few weeks has been inconsistent — not tout recovery percentages as a sign of success. After all, with a case fatality rate of 1.6%, ultimately 98.4% of people infected by the SARS-CoV-2 virus will recover. It’s just math.
4.8% of people have come back from positive tests across the country, for every million residents. Residents of states with high positivity rates also have high death rates per million in Kansas and 708 for Alaska.

A scatter plot shows the relationship between positivity rate and deaths per million. The correlation coefficient is 0.77. The relationship is statistically significant.
Neurological consequences of COVID-19

Scientists examine neurological consequences of COVID-19 (New Kerala: 2020928)


In a recent study, neuroscientists and clinicians examined the potential link between COVID-19 and increased risk of Parkinson's disease, with an aim to find measures to get ahead of the curve.

The study has been published in the Journal of Parkinson's Disease.

"Although scientists are still learning how the SARS-CoV-2 virus is able to invade the brain and central nervous system, the fact that it's getting in there is clear. Our best understanding is that the virus can cause insult to brain cells, with potential for neurodegeneration to follow on from there," said Professor Kevin Barnham from the Florey Institute of Neuroscience and Mental Health.

In a review paper published today, researchers put a spotlight on the potential long-term neurological consequences of COVID-19, dubbing it the 'silent wave'. They are calling for urgent action to be taken to have available more accurate diagnostic tools to identify neurodegeneration early on and a long-term monitoring approach for people who have been infected with the SARS-CoV-2 virus.

The researchers report that neurological symptoms in people infected with the virus have ranged from severe, such as brain hypoxia (lack of oxygen), to more common symptoms such as loss of smell.

"We found that loss of smell or reduced smell was on average reported in three out of four people infected with the SARS-CoV-2 virus. While on the surface this symptom can appear as little cause for concern, it actually tells us a lot about what's happening on the inside and that is that there's acute inflammation in the olfactory system responsible for smell," explained Florey researcher Leah Beauchamp. Inflammation is understood to play a major role in the pathogenesis of neurodegenerative disease and has been particularly well studied in Parkinson's. Further research into these illnesses may prove critical for future impacts of SARS-CoV-2.

"We believe that the loss of smell presents a new way forward in detecting someone's risk of developing Parkinson's disease early. Armed with the knowledge that loss of smell presents in
around 90% of people in the early stages of Parkinson's disease and a decade ahead of motor symptoms, we feel we are on the right track," added Ms Beauchamp.

Clinical diagnosis of Parkinson's disease currently relies on the presentation of motor dysfunction, but research shows that by this time 50-70% of dopamine cell loss in the brain has already occurred.

"By waiting until this stage of Parkinson's disease to diagnose and treat, you've already missed the window for neuroprotective therapies to have their intended effect. We are talking about an insidious disease affecting 80,000 people in Australia, which is set to double by 2040 before even considering the potential consequences of COVID, and we currently have no available disease-modifying therapies," said Professor Barnham.

The researchers hope to establish a simple, cost-effective screening protocol aiming to identify people in the community at risk of developing Parkinson's, or who are in early stages of the disease, at a time when therapies have the greatest potential to prevent the onset of motor dysfunction. They plan to put the proposal forward for funding from the Australian Government's Medical Research Future Funding scheme.

Additionally, the team have developed two neuroprotective therapies currently under investigation and have identified a cohort of subjects who are ideally suited to study the treatments. Through their research, they gained new evidence that people with REM sleep behaviour disorder have a higher predisposition to go on to develop Parkinson's disease.

Parkinson's disease is a significant economic burden costing the Australian economy in excess of USD 10 billion a year.

"We have to shift community thinking that Parkinson's not a disease of old age. As we've been hearing time and time again, the coronavirus does not discriminate - and neither does Parkinson's," said Professor Barnham.

"We can take insight from the neurological consequences that followed the Spanish Flu pandemic in 1918 where the risk of developing Parkinson's disease increased two to three-fold. Given that the world's population has been hit again by a viral pandemic, it is very worrying indeed to consider the potential global increase of neurological diseases that could unfold down the track."He added, "The world was caught off guard the first time, but it doesn't need to be again. We now know what needs to be done. Alongside a strategised public health approach, tools for early diagnosis and better treatments are going to be key."

Antifungal preventive drugs

Antifungal preventive drugs reduce mortality risk following lung transplantation: Study (New Kerala: 2020928)

Antifungal preventive medications reduce mortality risk by half in the first year following lung transplantation, according to new research.

The new Mayo Clinic research involved 667 patients who received lung transplants from 2005 to 2018.

The retrospective study, published in the Annals of the American Thoracic Society, is the largest ever to evaluate the effectiveness of antifungal preventive drugs in lung transplant recipients who are particularly susceptible to invasive fungal infections. These infections are associated with a nearly threefold increase in mortality for lung transplant recipients.

Mayo Clinic researchers used deidentified administrative claims data from OptumLabs Data Warehouse. The study analysed data for adult patients who underwent a single or double lung transplant, or a concurrent heart-lung transplant, in the US between January 1, 2005, and December 31, 2018. Of the 667 patients, 385, or 57.8 per cent, received antifungal treatment and 282, or 42.3 per cent, did not. Sixty-five patients died during the study, and all-cause mortality was significantly lower in those patients who received antifungal medications.

"Use of antifungal preventive medications in lung transplant patients is increasingly common, but no studies have established its efficacy," says Kelly Pennington, M.D., the study's first author. "This is the first study to demonstrate a mortality benefit associated with the use of antifungal prophylaxis in lung transplant patients. We still do not know which lung transplant patients receive the most benefit from these medications, and there are other unanswered questions that will require more research." Dr Pennington is a Mayo Clinic Scholar in the Division of Pulmonary and Critical Care Medicine.

A 2019 Mayo Clinic study found that 90% of U.S. transplant centres routinely prescribe antifungal preventive medications after lung transplant, but no prospective studies have established the benefits of these medications. "In our retrospective study, the risk of death within the first year posttransplant is about twice as high in patients not receiving antifungal preventive treatment, compared with those receiving treatment," says Dr Pennington.

Itraconazole and voriconazole were the two most common antifungal preventive medications prescribed in the study. Patients who received antifungal drugs had a lower rate of fungal infections than those who did not, though the difference was not statistically significant.

Protracted use of antifungal drugs can have negative health effects, including cardiomyopathy, skin cancer and liver dysfunction. Also, antifungal medications are expensive and can interact with other medications. Therefore, the health care team must monitor anti-fungal medications closely."Given the variation in practice among transplant centres, the potential for medication side effects, medication costs and risk of drug interactions, it was imperative to determine whether antifungal preventive medications are beneficial for lung transplant recipients," says Cassie Kennedy, M.D., senior author.

"Our finding of a significant reduction in mortality risk among lung transplant recipients who received antifungal medications is consistent with several prior studies in hematologic malignancies and bone marrow transplant patients." Dr Kennedy is a physician in Mayo Clinic's Division of Pulmonary and Critical Care Medicine.
Diminished response by 'killer' T cells responsible for high mortality rate in elderly COVID-

Elderly patients face a higher risk of severity and death than younger patients due to COVID-19, and new research, comparing the immune response among age groups, may help explain the reason why?

Older patients with the disease have lower frequencies of the immune cells needed to expel the virus from the body, the researchers found. The study was published this week in mBio, an open-access journal of the American Society for Microbiology.

"Elderly people have more severe diseases compared to young people, and we found that the cytotoxic part of immune control is not as efficient to respond to the virus in older people," said virologist Gennadiy Zelinskyy, Ph.D., at the University Hospital Essen, in Germany, who also led the new study.

He and his colleagues analysed blood samples from 30 people with mild cases of COVID-19 to observe how T cells, which are necessary for recognition and elimination of infected cells, respond during SARS-CoV-2 infection. Patient ages ranged from the mid-20s to the late 90s. In all patients, the investigators found that acute SARS-CoV-2 infections led to lower numbers of T cells in the blood of the patients, compared to healthy individuals.

This reduction has been one of many unwelcome surprises from COVID-19, said Zelinskyy. Most viruses, once inside the body, trigger an uptick in the immune system's expansion of T cells. These include "killer" T cells, which play a critical role in eradicating virus-infected cells. They produce cytotoxic molecules that destroy infected cells in the body. But if a person's immune system produces fewer of these T cells, said Zelinskyy, it will be less successful at fighting off a viral infection.

In the COVID-19 patient group studied by Zelinskyy and his colleagues, the researchers similarly found that the number of CD8+ T cells producing cytotoxic molecules in response to virus diminished with increased age, and that reduction was significantly higher, on average, in patients over 80. Moreover, the "killer" T cells from patients aged 80-96 produced cytotoxic molecules at a lower frequency than similar cells from younger patients.

The SARS-CoV-2 virus attaches to cells in the nose or mouth. From there, it may spread to the lungs and move on to other organs, triggering a life-threatening infection. "Cytotoxic T cells really fight for control during this acute phase of infection," Zelinsky said.

If an elderly patient's immune system produces fewer killer T cells, and these cells are inadequately armed, he said, they may be mounting an insufficient defence against SARS-CoV-2. The viral particles can continue to spread and, as a result, the infection worsens.

The new data suggest that cytotoxic T cells play a key role in the control of early infections, but Zelinskyy cautioned that it's too soon to know if that connection can be harnessed to design effective immunotherapy that uses these cells. In previous studies on viral infections in mice, his group found that a checkpoint inhibitor -- immunotherapy that activates killer T cells and effectively releases the brakes on the immune system -- improved virus control at first but had the potential to later cause damage to the lungs and other organs. Further studies are warranted,
he said, to better understand the potential risks and benefits of interfering with T cells as a way to control SARS-CoV-2 and other viruses.

A cheaper, faster COVID-19 test (New Kerala: 2020928)


A method for fast, cheap, yet accurate testing for COVID-19 infection has been developed by a team of researchers. The method simplifies and frees the testing from expensive reaction steps, enabling upscaling of the diagnostics.

This makes the method particularly attractive for places and situations with limited resources. It is equally interesting for repeated testing and for moving resources from expensive diagnostics to other parts of the care chain. The study led by researchers at the Karolinska Institutet was published in the journal Nature Communications.

"We started working on the issue of developing a readily available testing method as soon as we saw the developments in Asia and southern Europe, and before the situation reached crisis point in Sweden," says principal investigator Bjorn Reinius, research leader at the Department of Medical Biochemistry and Biophysics at Karolinska Institutet. "Our method was effectively finished already by the end of April, and we then made all the data freely available online."

The spread of the new coronavirus at the end of 2019 in China's Wuhan region quickly escalated into a global pandemic. The relatively high transmission rate and a large number of asymptomatic infections led to a huge, worldwide need for fast, affordable, and effective diagnostic tests that could be performed in clinical as well as non-clinical settings.

Established diagnostic tests for COVID-19 are based on the detection of viral RNA in patient samples, such as nasal and throat swabs, from which RNA molecules must then be extracted and purified. RNA purification constitutes a major bottleneck for the testing process, requiring a great deal of equipment and logistics as well as expensive chemical compounds.

Making the current methods simpler without markedly compromising their accuracy means that more and faster testing can be carried out, which would help to reduce the rate of transmission and facilitate earlier-stage care.

The cross-departmental research group at Karolinska Institutet has now developed methods that completely circumvent the RNA-extraction procedure so that once the patient sample has been inactivated by means of heating, rendering the virus particles no longer infectious, it can pass straight to the diagnostic reaction that detects the presence of the virus.

According to the researchers, the most important keys to the method's success are both the above virus inactivation procedure and a new formulation of the solution used to collect and transport the sample material taken from the patients.
"By replacing the collection buffer with simple and inexpensive buffer formulations, we can enable viral detection with high sensitivity directly from the original clinical sample, without any intermediate steps," says Dr Reinius.

Institutions and research groups around the world have shown great interest in the method since a first version of the scientific article was published on the preprint server medRxiv. The article was read more than 15,000 times even before it was peer-reviewed by other researchers in the field and officially published in Nature Communications.

"Thanks to the low cost and the simplicity of the method, it becomes a particularly attractive option at sites and in situations with limited resources but a pressing need to test for COVID-19," he says and adds "I would certainly like to see that this test used in Sweden too, for example for cheap periodic testing of asymptomatic people to eliminate the spread of infection."

Arthritis and risk of diabetes

**Study points to link between Rheumatoid arthritis and risk of diabetes**

*New Kerala: 2020928*


Rheumatoid arthritis (RA) is associated with a 23 percent increased risk of type 2 diabetes (T2D), and may indicate that both diseases are linked to the body's inflammatory response, suggests a new study.

The research was conducted by Zixing Tian and Dr Adrian Heald, University of Manchester, UK, and colleagues.

Inflammation has emerged as a key factor in the onset and progression of T2D, and RA is an autoimmune and inflammatory disease. The team suggests that the systemic inflammation associated with RA might therefore contribute to the risk of individuals developing diabetes in the future.

The team conducted a comprehensive search of a range of medical and scientific databases up to March 10, 2020, for cohort studies comparing the incidence of T2D among people with RA to the diabetes risk within the general population.

Statistical analyses were performed to calculate the relative risks, as well as to test for possible publication bias (in which the outcome of research influences the decision of whether to publish it or not).

The eligible studies identified comprised a total of 1,629,854 participants. Most of the studies were population-based and one was hospital-based, while no evidence was found for publication bias in any of them.
The authors found that having RA was associated with a 23 percent higher chance of developing T2D, compared to the diabetes risk within the general population.

"This finding supports the notion that inflammatory pathways are involved in the pathogenesis of diabetes," the authors said.

"We suggest that more intensive screening and management of diabetes risk factors should be considered in people with rheumatoid arthritis. Agents that reduce systemic inflammatory marker levels may have a role in preventing type 2 diabetes. This may involve focussing on more than one pathway at a time," the researchers stated.

Mental and physical after-effects closely linked in case of childhood abuse (New Kerala: 2020928)


Toronto [Canada], September 26: The psychological and physical effects of childhood sexual abuse are closely tied, reveals a new Canadian study.

The finding could help healthcare professionals develop more effective interventions and ultimately improve mental and physical health outcomes for survivors of abuse in childhood.

Authored by Pascale Vezina-Gagnon, a PhD candidate at Universite de Montreal's Department of Psychology, under the supervision of Professor Isabelle Daigneault, the study is published today in Health Psychology.

The long-term consequences of childhood sexual abuse on survivors' health have only been recognized recently.

An initial study of 1,764 children and adolescents, published in 2018, showed that girls who survived substantiated cases of sexual abuse received 2.1 times as many diagnoses of urinary health issues and 1.4 times as many diagnoses of genital health issues than girls in the general population.

This finding prompted a subsequent study to determine why and how sexual-abuse survivors suffered from genitourinary problems more often than their peers in the general population.

Specifically, the second study aimed to gain a better understanding of this phenomenon by testing the theory that increased psychological distress is partly responsible for the higher incidence of genitourinary issues - such as urinary tract infections, vaginitis, and pain during sex or menstruation - among childhood sexual abuse survivors.
"The key takeaway from this study is that one-sided treatment - one that addresses just the psychological after-effects or just the physical trauma-- is inadequate," said Vezina-Gagnon. "We need to follow a combined approach to treatment that doesn't view these issues as separate."

She added "Interdisciplinary care is increasingly becoming the standard, and that's the message we hope our research sends to general practitioners, pediatricians, urologists, gynecologists, psychologists and psychiatrists so that they can help children recover as much as possible."

This is the first study to look at the relationship between genitourinary and psychological issues over such a long period of time - more than a decade - in such a large sample of child survivors of substantiated sexual abuse versus a comparison group.

The researchers used medical data provided by Quebec's public health insurance agency, the Regie de l'assurance maladie du Quebec, and the Quebec Ministry of Health and Social Services. The study involved 661 girls between the ages of 1 and 17 who survived one or more instances of substantiated sexual abuse and a comparison group of 661 girls from the general population.

The researchers had access to anonymized data on genitourinary and mental health diagnoses received following medical consultations or hospital stays the girls went through between 1996 and 2013. Several variables were taken into account, such as socioeconomic status, the number of years of access to medical data, and individual predispositions to genitourinary health problems before the sexual abuse occurred.

Childhood sexual abuse includes fondling and petting, oral sex, actual or attempted penetration, voyeurism, indecent exposure, inducement to engage in sexual activity and sexual exploitation (prostitution).

"The results show that girls who were sexually abused were more likely to see a health professional for a wider range of psychiatric issues--anxiety, mood disorders, schizophrenia or substance abuse--than girls in the comparison group," said Vezina-Gagnon. "These consultations were also associated with more frequent medical appointments or hospitalizations for genital and urinary issues in the years after the sexual abuse was reported."

The researchers also found that the more girls consulted their doctors or were hospitalized for multiple psychiatric issues (so-called comorbid psychiatric disorders) after experiencing abuse, the more important this explained subsequent genital health issues (62%) and urinary health issues (23%). This difference observed between genital and urinary health (62% vs. 23%) may be explained by factors not included in this study, said Vezina-Gagnon.

"Additional studies are needed to investigate this difference and determine whether other important variables - ones that we didn't have information on, such as the severity, length and frequency of the abuse -could be associated with more severe genitourinary health outcomes," she said.

"On an emotional and behavioural level, two hypotheses can be formulated to explain these findings," said Vezina-Gagnon. The first is that the association is due to a hypervigilant response. Survivors of sexual abuse who are affected by several mental health issues - such as anxiety, depression and post-traumatic stress disorder - may become hypervigilant or more
likely to notice symptoms related to their genitals or urinary health, which would lead them to see their doctor more frequently. "In contrast," she continued, "the second hypothesis is that the association is caused by avoidant behaviour.

Survivors may put off or avoid asking for help or seeing a doctor for genitourinary issues, thereby increasing the risk that such problems deteriorate or become chronic conditions. Gynaecological care may trigger memories of past abuse (due to the imbalance of power between patients and doctors, the removal of clothing, feelings of vulnerability and physical pain) and it may therefore be especially difficult for these girls."

The study's findings align with the scientific literature on health psychology and abuse, and once again highlight how important it is to consider the relationship between physical and mental health," said Vezina-Gagnon. A holistic approach (body-mind approach) is therefore needed to help girls recover from sexual trauma, she maintains.

"In light of these findings, healthcare practitioners should assess the level of psychological distress experienced by survivors of childhood sexual abuse who report genitourinary issues and direct them to the right mental health resources," Vezina-Gagnon said.

"The researchers behind this study believe that early and targeted intervention to reduce psychological distress among survivors may be helpful in preventing genitourinary issues from deteriorating or turning into chronic conditions."

Mental health

COVID-19 effect: Suspension of fertility treatments impacts mental health
(New Kerala: 2020928)


Due to the COVID-19 pandemic, the suspension of fertility treatments have had a variety of psychological impacts on women whose treatments were cancelled, but there are several protective factors that can be fostered to help in the future, suggest the findings of a new study.

The study by Jennifer Gordon and Ashley Balsom of the University of Regina, Canada, was published in the open-access journal PLOS ONE.

One in six reproductive-aged couples experiences infertility, and many turn to treatments such as intrauterine insemination (IUI) and in vitro fertilisation (IVF), which require many in-person appointments to complete.

On March 17, 2020, the American Society of Reproductive Medicine and the Canadian Fertility and Andrology Society announced their recommendations to immediately and indefinitely suspend all in-person fertility treatments in the United States and Canada due to COVID-19.
In the new study, researchers used online social media advertising to recruit 92 women from Canada and the US who reported having their fertility treatments suspended to participate in an online survey. The women, who were aged between 20 and 45, had been trying to conceive for between 5 and 180 months. More than half had had an IVF cycle cancelled and approximately one-third had been in the middle of IUI when treatments were suspended.

Overall, 86% of respondents reported that treatment suspensions had a negative impact on their mental health and 52 per cent reported clinically significant depression symptoms. Neither age, education, income, or the number of children were correlated with the effect of treatment suspension on mental health or quality of life.

However, other factors were found to positively influence these outcomes lower levels of defensive pessimism ($r=-0.25$, $p \lt 0.05$), greater infertility acceptance ($r=0.51$, $p \lt 0.0001$), better social support ($r=0.31$, $p \lt 0.01$), and less avoidance of infertility reminders ($r=0.23$, $p=0.029$) were all associated with a less significant decline in mental health.

The authors add "This study highlights how enormously challenging the COVID-19 pandemic has been for women whose fertility treatments have been suspended. At the same time, it points to certain factors that may help women cope during this difficult time, such as having good social support."

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**Natural medicine**

**Does the cure for Coronavirus symptoms lie in natural medicine? (New Kerala: 2020928)**


In the last eight months of the Coronavirus pandemic, enough cases have been made for supplementing Covid-19 treatment with natural medicine. Data emerging from multiple locations has recorded a decline in mortality rates in the states and countries who have incorporated natural medicine for immune boosting and to aid recovery from Covid-19.

China was among the first to set this trend as the Chinese Government mandated the use of traditional Chinese medicine (TCM) for Coronavirus treatment in February 2020. Later, a trend was observed when Madagascar created and mandated the use of COVID Organics with anti-malarial herb Artemisia.

India witnessed a severe outbreak from March-April, and the states of Kerala and Goa announced to incorporate Ayurveda for immune boosting and as an adjunct treatment of Covid-19. Industry estimates show that the states continue to have one of the lowest coronavirus related death rates in India, which are close to one-tenth of their neighbouring states, shares Biogetica, a pharma company that combines ayurveda, allopathy and homeopathy in its medicines.
As per initial investigations done by doctors, it was pointed that there wasn't enough scientific data or studies done to support the usage of natural medicine. However, the trends indicate many lives have been saved and the legislators across the world should consider this option strongly along with an increase in coronavirus testing, it added.

"Most studies done on herbal or homeopathic medicine for coronavirus thus far are either in silica, in vitro, adjunct or preventative. Numerous positive outcomes have been noticed. One prime example is a German In vitro study done by Max Planck Institute that showed Artemisia extracts breaking the bond between the virus and infected cells. However, none of these studies has compared natural treatment to pharmaceutical treatment of Coronavirus directly. At most they have given natural treatment as an add on and noticed some slight improvement in the patients receiving both treatments simultaneously."

Corival Life Sciences, a joint venture between Biogetica and Wockhardt Foundation, has now conducted a trial where Immunofree and Reginmune, its Ayurvedic and nutraceutical products are being studied as the main medicine for half the patients in the trial. Corival Life Sciences last month launched a CTRI registered, multicentre, randomized clinical trial. Half the patients were put on Reginmune and Immunofree while the other half in the control arm were given the Govt SOP of HCQ, Favipiravir Azithromycin and Cetirizine, the pharma company said.

"Immunofree, an Ayurvedic medicine contains 15 herbs including Artemisia, Giloy, Glycyrrhiza, Andrographis, Haritaki and others recommended by AYUSH and is being used in countries who have mandated natural treatment of Corona. Regimmune is a western immune modulator with Vitamins, Minerals and Amino Acids.

"The interim report of the trial makes a ground-breaking revelation. Patients on only Immunofree and Reginmune resolved coronavirus symptoms faster and 86 per cent of them tested negative for Coronavirus in five days. In comparison most symptoms lasted longer on the pharmaceutical SOP and only 60 per cent tested negative on the fifth day. Numerous test markers relevant to Coronavirus treatment including viral load, blood oxygenation, d-dimer, procalcitonin, leukocytes and C reactive protein and fever were recorded and most seem to be in favour of the natural treatment arm," they said.

The positive direction of the trial, as per Biogetica, delivers excellent news for the whole world and Indians especially, with stringent controls of recent science is proving the traditional medical system of Ayurveda in a manner never done before.

"Recruitment into this trial at three hospitals has now been accelerated and some practitioners are even appealing to government agencies for early adoption of this combination natural therapy." These natural remedies can only be labelled for Coronavirus treatment once AYUSH and ICMR approve their use and that these studies itself cannot be construed as a claim of coronavirus treatment or cure. Both Reginmune and Immunofree are readily available in the market but not to be presently sold as a coronavirus treatment or cure until the trial completes and government agencies approve them.

Dr Vijay Kushvaha, a physician from Mumbai said that he has months of experience using Reginmune and Immunofree and it is overwhelming to see the results which are documented. "I myself was a part of the pilot study. Most firms are trying to repurpose older pharmaceuticals or Ayurvedic medicines for Coronavirus treatment whereas these were made for the multifaceted presentation we are seeing in 2020. It is my hope that India adds these traditional
medicines to the government SOPs countrywide for Corona treatment nationwide. They also seem to be of great benefit to those who are pre-corona and post-corona and should be taken by all until the pandemic settles down."

**Depression (Hindustan : New Kerala: 2020928)**

https://epaper.livehindustan.com/imageview_342755_122277532_4_1_28-09-2020_3_i_1_sf.html

**Coronainfection : (New Kerala: 2020928)**

https://epaper.livehindustan.com/imageview_342756_122247382_4_1_28-09-2020_4_i_1_sf.html
आशंका: मरीजों को दोबारा सता रहा संक्रमण का इर

नई दिल्ली | कार्यालय संवाददाता

कोरोना से ठीक हो चुके लोगों को स्वस्थ होने के बाद भी कई तरह की समस्याओं से जूझना पड़ रहा है। वहाँ, कई मरीजों में दोबारा से कोरोना होने का भय देखने को मिल रहा है। पोस्ट कोविड क्लिनिक में ऐसे कई मामले सामने आए हैं।

राजीव गांधी सुपर स्पेशिलिटी अस्पताल के चिकित्सा निदेशक डॉ. बी एल शेरवाल ने बताया कि दो हजार से ज्यादा मरीज ठीक होकर अपने घर चले गए हैं। डॉक्टरों की एक टीम ऐसे मरीजों से लगातार संपर्क में है।

मरीजों की टेली काउंसिलिंग की मदद से समस्याओं को दूर किया जाता है। अलग-अलग मरीज कई तरह की प्रेरणावाद बताता है। वह मानसिक तौर पर स्वस्थ रहे उसके लिए योगा करने से लेकर ध्यान लगाने की सलाह दी जाती है। मरीजों में आत्मविश्वास का कमी और बेचैनी होने की बात ज्यादा सामने आ रही है।

आठ हजार से ज्यादा मरीज लोकनायक में ठीक हुए

दिल्ली के सबसे बड़े कोविड लोकनायक अस्पताल से भी आठ हजार से ज्यादा मरीज ठीक होकर घर जा चुके हैं। अस्पताल की कोरोना को लेकर दो हजार बेड की क्षमता है, जिसमें फिलहाल करीब 1306 बेड खाली पड़े हैं।

244 मरीज पोस्ट कोविड क्लिनिक में पहुंचे: डॉ. शेरवाल ने बताया कि ऐसे मरीजों के लिए पोस्ट कोविड क्लिनिक भी बनाया गया है। इसमें एनसीआर से भी लोग काउंसिलिंग के लिए आते हैं। अब तक 244 से ज्यादा मरीज क्लिनिक में दिखाई के लिए आ चुके हैं।

10 से 15 पीसीडी मरीजों में कोरोना के दोबारा होने को लेकर भय देखने को मिला। इसके अलावा मरीज बदन दर्द और थकावट होने की समस्या को भी बयान करते हैं।