DAILY NEWS BULLETIN

LEADING HEALTH, POPULATION AND FAMILY WELFARE STORIES OF THE DAY

Friday 20210618

कोरोना

देश में बीते 24 घंटों में आए कोरोना के 62 हजार मामले, मौतों की संख्या घटी (Dainik Jagran: 20210618)

https://www.jagran.com/news/national-coronavirus-india-update-62-thousand-covid-cases-came-in-the-country-in-the-last-24-hours-number-of-deaths-decreased-21748419.html?itm_source=website&itm_medium=homepage&itm_campaign=p1_component

देश में लगातार सुधर रहे कोरोना के हालात।(फोटो: दैनिक जागरण)

देश में कोरोना संक्रमण में लगातार जारी है गिरावट। बीते 24 घंटे में आए सिर्फ 62 हजार मामले। मौत के आंकड़ों में भी आई कमी। बीते एक दिन में 1587 लोगों की मौत। रिकवरी रेट भी बढ़ा। सक्रिय मामले कम हुए।

नई दिल्ली, एएनआइ। देश में कोरोना के संक्रमण में लगातार कमी आ रही है। बीते 24 घंटों में देश में कोरोना के 62 हजार नए मामले सामने आए हैं। इसके साथ ही अब देश में कोरोना से होने वाली मौतों की संख्या भी घट रही है। केंद्रीय स्वास्थ्य मंत्रालय के ताजा आंकड़ों के मुताबिक, देश में पिछले 24 घंटे में कोरोना वायरस के 62,480 नए मामले सामने आए हैं। इस दौरान मौत के आंकड़े में गिरावट देखी गई है। बीते 24 घंटे में देशभर में 1587 लोगों की कोरोना संक्रमण के कारण मौत हुई है।

इसके साथ ही देश में कोरोना से ठीक होने वाले मरीजों की संख्या भी लगातार बढ़ रही है। बीते 24 घंटों में देशभर में कोरोना से 88,997 लोग रिकवर हुए। इसको मिलाकर अबतक देश में कुल 2 करोड़ 85

लाख 80 हजार 647 लोग ठीक हो चुके हैं। इससे कोरोना की रिकवरी दर बढ़कर 96.03 फीसद हो गई है। देश में कोरोना से सक्रिय मामले कम हो रहे हैं। बीते 24 घंटों में देश में कोरोना के 28,084 एक्टिव केस कम हुए हैं। इसके बाद अब देश में सिर्फ कोरोना के 7 लाख 98 हजार 656 सक्रिय मामले बचे हैं। भारत की कोरोना एक्टिव दर अभी 2.68% है।

देश में कोरोना के कुल केस की बात करें तो अब तक देश में 2 करोड़ 97 लाख 62 हजार 793 मामले सामने आ चुके हैं। भारत में कोरोना से अभी तक कुल 3,83,490 लोगों की मौत हो चुकी है। देश की कोरोना मृत्यु दर फिलहाल 1.29% है।

देशभर में टीकाकरण तेजी से जारी

देशभर में गुरुवार 17 जून तक 26 करोड़ 89 लाख 60 हजार 399 कोरोना वैक्सीन के डोज दिए जा चुके हैं। बीते एक दिन में 32 लाख 59 हजार 3 टीके लगाए गए। देश में कोरोना की जांच की बात करें तो अबतक 38 करोड़ 71 लाख 67 हजार 696 कोरोना टेस्ट किए जा चुके हैं। बीते दिन करीब 19 लाख 29 हजार 476 कोरोना सैंपल टेस्ट किए गए।

कोरोना वैक्सीन

पहली खुराक में एस्ट्राजेनेका दूसरी में लें फाइजर या मॉडर्ना, बनेंगे अधिक एंटीबॉडी; कनाडा में दी जा रही सलाह (Dainik Jagran: 20210618)

https://www.jagran.com/world/america-pfizer-and-moderna-preferred-2nd-dose-after-astrazeneca-says-canada-21748398.html

एस्ट्राजेनेका के बाद दूसरी खुराक ले सकते हैं फाइजर या मॉडर्ना, कनाडा में दी गई सलाह

कोरोना वैक्सीन की दो खुराक अलग अलग कंपनियों की हो सकती है। ऐसी सलाह कनाडा में इम्युनाइजेशन पर काम करने वाली कमिटी ने दी है। कमिटी ने कहा है कि यदि लोग चाहें तो पहली खुराक एस्ट्राजेनेेका की और दूसरी मॉडर्ना या फाइजर की हो सकती है।

ओटावा, एपी। कोरोना महामारी से बचाव के लिए अब तक दुनिया में एकमात्र उपाय वैक्सीन ही उभर कर सामने आ रहा है। इस क्रम में दुनिया के तमाम देशों में तेजी से वैक्सीनेशन अभियान जारी है। अब कनाडा में वैक्सीन पर रिसर्च करने वाली एडवाइजरी कमिटी ने सलाह दी है कि कोरोना वैक्सीन की दोनों खुराक एक ही ब्रांड की हो यह जरूरी नहीं। इसके अनुसार पहली खुराक एस्ट्राजेनेका तो दूसरी मॉडर्ना या फाइजर भी हो सकती है।

कनाडा की नेशनल एडवाइजरी कमिटी ने गुरुवार को टीकाकरण के मामले में बयान जारी किया। इसमें बताया कि जिन्होंने कोरोना वैक्सीन एस्ट्राजेनेका (AstraZeneca) लिया है उन्हें दूसरे डोज के तौर पर फाइजर या मॉडर्ना लेनी चाहिए। 1 जून को कमिटी ने कहा था कि कोरोना वैक्सीन लाभार्थी पहले डोज में एस्ट्राजेनेका और दूसरे डोज में फाइजर या मॉडर्ना ले सकते हैं।

कमिटी ने अपने पहले दिए गए सुझाव को भी अपडेट किया कि जिन लोगों को कोविड-19 का जोखिम अधिक है वे फाइजर या मॉडर्ना के लिए इंतजार न करें और एस्ट्राजेनेका की खुराक लें। कनाडा की चीफ पब्लिक हेल्थ ऑफिसर डॉक्टर थेरेसा टैम ने कहा, 'जिन्होंने एस्ट्राजेनेका या कोविशील्ड की दोनों खुराक ले ली है उन्हें अपनी सुरक्षा को लेकर आश्वस्त रहना चाहिए। उन्हें इस वक्त तीसरे खुराक की जरूरत नहीं है।'

जर्मनी की सारलैंड यूनिवर्सिटी (Germany's Saarland University) द्वारा किए गए एक अध्ययन के अनुसार एस्ट्राजेनेका की दोनों खुराक की तुलना में एक खुराक एस्ट्राजेनेका के बाद दूसरी खुराक के तौर पर फाइजर दिए जाने या दोनों खुराक फाइजर की ही देने पर अधिक एंटीबॉडी बनते हैं। 5 जून तक 2 लाख 10 हजार लोगों को एस्ट्राजेनेका की एक खुराक दी गई और 15,186 लोगों को दोनों खुराकें मिल गई। कनाडा में अब तक फाइजर और मॉडर्ना की 1 करोड़ 40 लाख खुराक पहुंच चुकी है। इसके अलावा मॉडर्ना की 10 लाख खुराक गुरुवार रात अमेरिका से कनाडा पहुंची।

आंखों की रोशनी

कोविड से उबरने के बाद आंखों की रोशनी पर ध्यान देना जरूरी, बरतें ये सावधानियां (Hindustan: 20210618)

https://www.livehindustan.com/lifestyle/story-covid-19-after-recovering-from-coronavirus-it-is-important-to-pay-attention-to-eyesight-take-these-precautions-4134671.html

सार्स-कोव-2 वायरस आंखों का नूर भी छीन सकता है। भारत में कोविड-19 से उबरने वाले कई मरीजों ने नजर कमजोर पड़ने की शिकायत की है। ऐसे में विशेषज्ञ ठीक होने के एक से तीन महीने के भीतर रोशनी पर खास ध्यान देने की सलाह देते हैं। उनके मुताबिक आंखों के सामने धुंधलापन छाने की समस्या को भी हल्के में नहीं लेना चाहिए। धूप या तेज रोशनी में आंखें चौंधियाने और बल्ब के किनारे प्रकाश के घेरे दिखने पर भी फौरन डॉक्टर से संपर्क करना चाहिए।

मोतियाबिंद से मिलते-जुलते लक्षण उभर रहे

एम्स के डॉ. हरजीत सिंह भट्टी कहते हैं, कोरोना को मात देने वाले कई मरीज आंखों को नुकसान पहुंचने की शिकायत लेकर आ रहे हैं। कई संक्रमितों में तो मोतियाबिंद से मिलते-जुलते लक्षण पनप रहे हैं। इनमें आंखों के सामने काले धब्बे छाना, तेज प्रकाश के प्रति संवेदनशीलता, एक ही वस्तु के दो-दो चित्र नजर आना और रंग धुंधले दिखना प्रमुख है।

कोविड से उबरने के बाद आंखों की रोशनी पर ध्यान देना जरूरी, बरतें ये सावधानियां

कोविड से उबरने के बाद आंखों की रोशनी पर ध्यान देना जरूरी

इन पांच बातों से पहचानें कि कामयाब हो रहा है आपका वेट लॉस प्लान

इन पांच बातों से पहचानें कि कामयाब हो रहा है आपका वेट लॉस प्लान

क्या हैं वजहें

1.मांसपेशियां कमजोर होना

-कोरोना संक्रमण से उबरने वाले ज्यादातर मरीज हल्के-फुल्के काम निपटाने में भी थकान महसूस होने की शिकायत करते हैं। इसका मतलब यह है कि उनकी मांसपेशियों को पर्याप्त मात्रा में ऊर्जा नहीं

मिल पा रही है, जिससे वे कमजोर पड़ गई हैं। हाथ-पैर की तरह आंखों की मांसपेशियों पर भी यह बात लागू होती है। ऐसे में मरीज नजर धुंधलाने की शिकायत से जूझने लगता है। हालांकि, खानपान पर ध्यान देने और पुरानी ताकत वापस पाने पर यह दिक्कत खुद बखुद दूर हो जाती है।

2.खून के थक्के जमना

मई 2020 में छपे कोलंबिया यूनिवर्सिटी के अध्ययन में कोविड-19 और 'थ्रम्बोसिस' के बीच गहरा संबंध पाया गया था। 'थ्रम्बोसिस' वह चिकित्सकीय अवस्था है, जिसमें नसों में खून के थक्के जमने से रक्तप्रवाह बाधित होने लगता है। विशेषज्ञों के मुताबिक कुछ धमनियां इतनी चौड़ी होती हैं कि थक्के खून के साथ बहते जाते हैं। पर आंखों के मामले में ऐसा नहीं होता। रेटिना में रक्तप्रवाह रुकने और ऑक्सीजन की आपूर्ति ठप पड़ने से कोशिकाओं के दम तोड़ने की शिकायत उभर सकती है।

हल्के में लेने पर दृष्टिहीनता का खतरा

डॉ. भट्टी के मुताबिक आंखों की मांसपेशियां कमजोर पड़ना युवाओं के लिए उतना चिंताजनक नहीं है। खानपान और दिनचर्या पर ध्यान देकर वे आंखों से जुड़ी दिक्कतों पर पार पा सकते हैं। हां, बुजुर्गों के लिए यह फिक्र का सबब है, क्योंकि ढलती उम्र में मांसपेशियों और कोशिकाओं की मरम्मत की प्रक्रिया बेहद धीमी हो जाती है। वहीं, 'थ्रम्बोसिस' की बात करें तो लापरवाही बरतने पर यह दृष्टिहीनता का सबब बन सकता है। इसकी वजह खून के थक्के के लंबे समय तक बने रहने से रेटिना की कोशिकाओं का नष्ट होना है।

समय रहते चिकित्सकीय मदद लेना अहम

कर्नाटक ऑप्थैल्मिक सोसायटी के डॉ. राजशेखर की मानें तो 'थ्रम्बोसिस' लाइलाज नहीं है। बशर्ते मरीज समय रहते आंखों के सामने पेश आने वाली दिक्कतों को पहचानें और उचित चिकित्सकीय सलाह लें।

देर न हो जाए

-04 से 06 घंटे के भीतर इलाज न होने पर रेटिना को नुकसान पहुंचा सकता है खून का थक्का।

-24 घंटे या उससे अधिक समय तक नजरअंदाज करने पर दृष्टिहीनता का सबब बन सकता है।

इलाज के उपाय

1.डॉक्टर ज्यादातर मामलों में खून को पतला करने वाली दवाओं से ही थक्के पिघलाते हैं।

2.एमआरआई में थक्का बड़ा दिखने पर उसे हटाने को सर्जरी का सहारा लेना पड़ सकता है।

ये सावधानियां बरतें

-कोविड-19 से उबरने के कुछ दिन बाद आंखों की जांच करवाएं, चश्मे का नंबर तेजी से घटने पर डॉक्टर से संपर्क करें।

-आंखों के सामने धुंधलापन छाने, नजर कमजोर पड़ने, तेज रोशनी के प्रति संवेदनशीलता जैसी दिक्कतों को हल्के में न लें।

-विटामिन-ए, ओमेगा-3 फैटी एसिड, ल्युटिन से भरपूर खाद्य सामग्री, मसलन हरी पत्तेदार सब्जियों, पीले फलों, गाजर, अंडे, दूध का सेवन बढ़ाएं।

कॉर्टिकॉस्टेरॉयड

कोरोना संक्रमित बच्चों के इलाज में कारगर कॉर्टिकॉस्टेरॉयड, अध्ययन में खुलासा (Hindustan: 20210618)

https://www.livehindustan.com/lifestyle/story-corticosteroids-effective-in-treating-corona-infected-children-study-revealed-4134664.html

कॉर्टिकॉस्टेरॉयड श्रेणी की दवाएं प्रतिरोधक तंत्र में मौजूद कोशिकाओं को अति-सक्रिय होने से रोकती हैं। अब 'न्यू इंग्लैंड जर्नल ऑफ मेडिसिन' में बुधवार को प्रकाशित एक अध्ययन में इन दवाओं को कोविड-19 से गंभीर रूप से संक्रमित होने वाले बच्चों के इलाज में असरदार करार दिया गया है।

इंपीरियल कॉलेज ऑफ लंदन के शोधकर्ताओं ने सार्स-कोव-2 वायरस की जद में आने के बाद एमआईएस-सी (मल्टी-सिस्टम इंफ्लेमेटरी सिंड्रोम इन चिल्ड्रन) का शिकार हुए 614 बच्चों पर कॉर्टिकॉस्टेरॉयड का असर आंका। यह जटिलता अमूमन संक्रमित होने के दो से छह हफ्ते बाद उभरती है। 13 से 18 साल के किशोर इसके प्रति ज्यादा संवेदनशील मिले हैं।

कोविड से उबरने के बाद आंखों की रोशनी पर ध्यान देना जरूरी, बरतें ये सावधानियां

कोविड से उबरने के बाद आंखों की रोशनी पर ध्यान देना जरूरी

इन पांच बातों से पहचानें कि कामयाब हो रहा है आपका वेट लॉस प्लान

इन पांच बातों से पहचानें कि कामयाब हो रहा है आपका वेट लॉस प्लान

मुख्य शोधकर्ता प्रोफेसर माइकल लेविन के मुताबिक एमआईएस-सी कोरोना की जद में आने वाले हर 50 हजार में से एक बच्चे को अपना शिकार बनाता है। इसमें पीड़ित को तेज बुखार, पेटदर्द, उल्टी, आंखें लाल होने और त्वचा पर लाल चक्कते उभरने जैसी समस्याएं झेलनी पड़ती हैं।

विभिन्न अध्ययनों में एमआईएस-सी से जूझ रहे बच्चों में मृत्यु दर दो से चार फीसदी के बीच पाई गई है। लेविन ने दावा किया कि कॉर्टिकॉस्टेरॉयड श्रेणी की दवाएं ऐसे बच्चों की जान बचाने में बेहद मददगार साबित हो सकती हैं। खास बात यह है कि ये दवाएं बेहद सस्ती होने के साथ आसानी से उपलब्ध हैं।

Clinical Trial

Serum could begin Covovax trial on children in India next month (The Indian Express: 20210618)

https://indianexpress.com/article/india/serum-could-begin-covovax-trial-on-children-in-india-next-month-7364033/

The recombinant nanoparticle protein-based vaccine — NVX-CoV2373 — developed by the American biotechnology firm has been branded Covovax in India.

Serum Institute of India (SII) is likely to begin clinical trials of Novavax's Covid-19 vaccine candidate on children in July, sources at the Pune-based vaccine manufacturer said.

The recombinant nanoparticle protein-based vaccine — NVX-CoV2373 — developed by the American biotechnology firm has been branded Covovax in India. SII, which is partnering with Novavax, expects to launch Covovax in India by September.

Earlier this week, Novavax announced excellent results from its PREVENT-19 phase 3 trials at 119 sites in the United States and Mexico, reporting an overall efficacy of 90.4 per cent —

on a par with Pfizer-BioNTech's and Moderna's mRNA shots, and better than both Oxford-AstraZeneca (Covishield) and Johnson & Johnson's one-dose vaccine.

A day after Novavax announced its trial data, Dr V K Paul, head of India's Covid-19 Task Force, had urged SII to begin clinical trials in the paediatric population without delay, given the impressive safety profile demonstrated by the vaccine candidate.

"There is an important, interesting, and positive development with regard to the Novavax results which are very promising. What we are learning from the data that is available is that this vaccine is highly effective," Dr Paul said on Tuesday.

"But what makes this vaccine relevant for today, is the fact that this vaccine will be produced in India. The preparatory work is already accomplished by Serum Institute… In fact, the bridging trial is an advanced stage of completion…and I am also hoping that they would start, in good time, trials in children; now because we have the safety data, it is time, without delay, for us now to start bridging trials in the paediatric population, which as you know is of special interest for us," he said.

As and when SII is allowed by the Indian drug regulator to conduct clinical trials on children, Covovax will become the third vaccine candidate to be tested in the country's paediatric population.

Bharat Biotech is conducting phase 2-3 trials to evaluate the safety, reactogenicity, and immunogenicity of Covaxin in healthy volunteers between the ages of 2 and 18 years at six sites in the country; Zydus Cadila's ZyCov-D Covid-19 vaccine candidate is being tested in volunteers above the age of 12 years.

The Covovax trials are important because of two reasons.

One, the government expects approximately 20 crore doses of the vaccine to be made available between August and December for the country's immunisation programme. Covovax can be stored at temperatures between 2° and 8° Celsius and is, therefore, suitable for India's cold chain requirements.

Two, the Novavax vaccine, uses a tried and tested recombinant nanoparticle technology to generate antigen derived from the coronavirus spike protein. Similar technology has been used to develop vaccines for Human papillomavirus (HPV), hepatitis, and influenza.

The US has cleared Pfizer's vaccine for young people of ages 12 years and older. Dr Paul had said earlier this month that the decision on vaccinating children in India was being "continuously examined". He had emphasised that once the vaccination of children was allowed, all of them above the specified age would be covered at the same time.

Asked whether the government was considering procuring Pfizer's vaccine, Dr Paul had said India would require 25-26 crore doses to vaccinate all its children.

"On the issue of which vaccine to be used for children, please remember that the child cohort is not a small cohort. My rough analysis is that if it is between 12 and 18 years, it itself is

around 13-14 crore. This means we need 25-26 crore doses. We cannot have some children getting and others not getting it," he had said.

Flu

Exposure to common cold virus can help fight Covid-19 (The Indian Express: 20210618)

https://indianexpress.com/article/explained/exposure-to-common-cold-virus-can-help-fight-covid-19-7364207/

Researchers have found that the common respiratory virus jump-starts the activity of interferon-stimulated genes.

A health workers conducts a Covid-19 test at Madhagram Rural Hospital in North 24 Parganas district.

Exposure to the rhinovirus, the most frequent cause of the common cold, can protect against infection by the virus which causes Covid-19, researchers have found.

In a new study, published in the the Journal of Experimental Medicine, researchers from Yale University found that the common respiratory virus jump-starts the activity of interferon-stimulated genes. These are molecules in the immune system whose early response can halt replication of the SARS-CoV-2 virus within airway tissues infected with the cold.

Triggering these defences early in the course of Covid-19 infection holds promise to prevent or treat the infection, the Yale University website quotes said the study's senior author, Ellen Foxman, as saying. One way to trigger these defences is by treating patients with interferons, an immune system protein which is also available as a drug. "But it all depends upon the timing," Foxman is quoted as saying.

Her team infected lab-grown human airway tissue with SARS-CoV-2 and found that for the first three days, viral load in the tissue doubled about every six hours.

However, replication of the COVID-19 virus was completely stopped in tissue that had been exposed to rhinovirus. If antiviral defences were blocked, the SARS-CoV-2 could replicate in airway tissue previously exposed to rhinovirus.

Alzheimer's disease

Alzheimer's: Discovery of microscopic metals in patients' brains may offer clues (Medical News Today: 20210618)

https://www.medicalnewstoday.com/articles/alzheimers-discovery-of-microscopic-metals-in-patients-brains-may-offer-clues#Ruling-out-contamination

Scientists have made a discovery that could shed light on the workings of Alzheimer's disease. Noctiluxx/Getty Images

Oxidized iron and copper are vital for the operation of numerous enzymes in the human body.

Research has implicated disruptions in the regulation of these and other charged metal ions in neurodegenerative disorders, including Alzheimer's disease.

Researchers were surprised to discover highly reactive particles of elemental iron and copper in postmortem brain samples from people with Alzheimer's.

The metals appeared to be stabilized within the beta-amyloid plaques that are a hallmark of the disease.

The discovery could provide insights into how the disease progresses and possibly lead to new ways of diagnosing and treating it.

For the first time, scientists have found tiny deposits of elemental, uncharged iron and copper in human tissue.

An international team of researchers discovered the metals in postmortem brain samples from two individuals who had Alzheimer's disease.

Metal ions, which are metal atoms with a net positive charge after losing one or more electrons, are essential components of many enzymes that catalyze chemical reactions in cells.

These positive ions can strip the electrons from other molecules, oxidizing these molecules.

However, the deposits of copper and iron that the scientists identified in the brain tissue of people with Alzheimer's were in their elemental, uncharged form.

These are highly reactive metal atoms that, under normal circumstances, would rapidly undergo oxidation to form more chemically stable ions.

Previously, scientists have only identified elemental metals such as these in microorganisms, viruses, and plants.

The researchers found the metals within beta-amyloid plaques, which are the clumps of protein that are a hallmark of Alzheimer's disease.

Previous research has linked changes in the metabolism of copper and iron in brain tissue to neurodegenerative diseases, including the formation of amyloid plaques in Alzheimer's disease.

The tiny deposits of elemental iron that the team found in the new study were magnetic, so in principle, doctors could use them for diagnosis or as a marker of disease progression.

The research appears in the journal Science Advances.

Powerful X-rays

The study was a collaboration between scientists from Keele University and the University of Warwick in the United Kingdom and those at the University of Texas at San Antonio in the United States.

The team used exceptionally powerful X-rays from the U.K.'s national synchrotron Diamond Light Source and the Advanced Light Source in California to image the brain tissue.

Synchrotrons accelerate electrons to almost light speed, generating brilliant beams of light that can probe the atomic structure of matter.

The deposits of elemental iron and copper that the scientists identified were on the nanoscale, meaning that they were approximately 10,000 times smaller than a pinhead.

"This is a fascinating and unexpected discovery, enabled by the sensitivity and precision of the synchrotron techniques we have used to study these human-brain-derived samples," says co-author Joanna Collingwood, Ph.D., who heads the Trace Metals in Medicine Laboratory at the University of Warwick.

"We know that certain living systems can produce elemental forms of metals, so it will be important to discover if these arise from equivalent but previously undiscovered pathways in humans, or if the metallic forms arise as a direct consequence of disease," she adds.

As elemental metals are so reactive, they can damage nerve tissue, so the brain may lock them up inside the plaques to avoid this.

"It is entirely feasible that beta-amyloid prevents the elemental iron and copper from oxidizing," said co-author Neil Telling, Ph.D., professor of biomedical nanophysics at Keele University.

"These elemental phases are extremely reactive to oxygen, so for us to be capable of measuring them using X-ray microscopy must mean their oxidation state has been stabilized in some capacity," he added.

He told Medical News Today that there is some evidence that soluble beta-amyloid may aggregate into insoluble plaques in the brains of people with Alzheimer's disease to prevent reactive metal atoms from damaging nearby brain cells.

Ruling out contamination

Could the metallic deposits in the brain samples simply be contaminants, perhaps from particulate matter in the air?

Prof. Telling explained that nanoparticles of elemental iron and copper from the environment would oxidize.

He and his colleagues conducted further control tests on such particles and found that they oxidized during sample preparation and examination.

"Indeed, our inability to prevent the oxidation of these metal standards makes our observation of elemental iron and copper in amyloid plaques all the more remarkable," said Prof. Telling.

Next, he said, the research team plans to look for metallic nanoparticles elsewhere in the brain.

If they are only associated with amyloid plaques, this will help neuroscientists figure out what they are doing there and what role they play in Alzheimer's disease.

"This line of research could ultimately lead to new treatments that target metals, as well as the amyloid proteins currently under consideration," said Prof. Telling.

"The existence of tiny magnetic iron particles within plaques could also help with diagnosis and to monitor disease progression, as they could, in principle. be detected by MRI scanners."

Mental Health

Inability of a brain region to adapt to stress may lead to depression (Medical News Today: 20210618)

https://www.medicalnewstoday.com/articles/inability-of-a-brain-region-to-adapt-to-stress-may-lead-to-depression#Limitations-and-conclusions

New research explains how a key brain region is implicated in depression. Westend61/Getty Images

Stress over a sustained period can lead to depression, but how chronic stress leads to depression is unclear.

A recent study shows that individuals without depression, unlike those with the condition, adapt to elevated everyday stress by changes in the response of the medial prefrontal cortex, a brain region involved in regulating the stress response.

An inability to produce an adaptive response to elevated everyday stress may lead to depression.

The extent of this inability to produce an adaptive response to stress may predict deficits in daily functioning.

Major depressive disorder (MDD), also known as clinical depression, is one of the most common mental health conditions in the United States. According to the National Institute of Mental Health (NIMH), approximately 7.1% of adults had a depressive episode in 2017.

Furthermore, recent researchTrusted Source carried out by the Centers for Disease Control and Prevention (CDC) suggests the stress of the current COVID-19 pandemic may be associated with an increase in self-reported depression and anxiety symptoms, particularly in adults under 30 years old.

Experiencing stress over a prolonged period, such as during the pandemic, is associated with the development of depression. One of the major symptoms of depression includes anhedonia, or the inability to anticipate or feel pleasure.

However, researchers do not have a comprehensive understanding of how chronic stress leads to depression or the accompanying symptoms of anhedonia.

Evidence suggests that the medial prefrontal cortex (mPFC), a brain region involved in processing reward and regulating the stress response, may be involved in mediating these effects of chronic stress.

While the mPFC is involved in regulating the stress response, acute and chronic stress also elicit changes in the mPFC.

Studies in rodents have shown that glutamate, an excitatory neurotransmitter, is released by neurons in the mPFC during acute stress.

However, rodents exposed to chronic stress exhibit lower levels of glutamate release in the mPFC when faced with a new acute stressful event.

Scientists think that such a reduction in the mPFC glutamate response due to chronic stress could be a protective adaptation to stress.

StudiesTrusted Source had already shown that mPFC glutamate activity is altered in depression.

Now, a study led by a team of researchers at Emory University in the United States shows that people with depression, unlike individuals without the condition, are unable to produce an adaptive decrease in mPFC glutamate levels in response to experiencing a recent increase in everyday stress.

Furthermore, the extent to which an individual with depression lacked such an adaptive response predicted their levels of anhedonia in daily life.

“We were able to show how a neural response to stress is meaningfully related to what people experience in their daily lives,” says Dr. Jessica Cooper, the study’s first author. “We now have a large, rich data set that gives us a tangible lead to build upon as we further investigate how stress contributes to depression.”

The study appears in the journal NatureTrusted Source.

Adaptive changes in glutamate release

To investigate the role of the mPFC in depression, the researchers recruited 65 individuals without depression and 23 people with MDD who were not taking medication.

Around 11–12 days before the experiment, the researchers used the Perceived Stress Scale (PSS) to measure each participant’s subjective or perceived stress levels over the past month.

On the test day, the participants completed a task that induced acute stress. The researchers used magnetic resonance spectroscopy (MRS), a noninvasive imaging technique, to measure changes in glutamate levels in the mPFC before and after the acute stress test.

The team found that the magnitude of change in mPFC glutamate levels due to the acute stress test was associated with perceived stress levels in people without depression.

People without depression and with lower levels of recent perceived stress, as measured by the PSS, showed an increase in mPFC glutamate levels after the test. In contrast, those without depression but with higher perceived stress showed no change or a decrease in mPFC levels.

While there were changes in mPFC glutamate levels in people with depression during the acute stress test, these changes were not correlated with their PSS score.

The authors suggest that the absence of an adaptive change in mPFC glutamate levels may play a role in the development of stress-related mental health conditions, such as depression.

Depression and anhedonia

To establish whether the mPFC glutamate response during the acute stress test was associated with daily functioning, the researchers surveyed the participants with depression every other day after the stress test for 4 weeks.

The surveys assessed the participant's optimism or pessimism regarding their life activities and the actual outcomes of these activities. Using this data, the researchers determined the accuracy of the participants' optimistic or pessimistic expectations.

Participants with MDD were likely to have more inaccurate pessimistic expectations than those without depression.

The researchers then created a model using the mPFC glutamate response data obtained from the participants without depression. Based on this, they quantified the extent to which the mPFC glutamate response in participants with MDD deviated from those without depression.

The researchers called this score the maladaptive glutamate response (MGR). The MGR score in participants with MDD was positively correlated with inaccurate pessimistic expectations.

Thus, the extent to which participants with MDD did not exhibit an adaptive decrease in mPFC glutamate levels during acute stress was associated with an inability to anticipate pleasure or anticipatory anhedonia.

Limitations and conclusions

The authors acknowledge that the study had a few limitations. For example, the authors note that, despite their efforts, the range of PSS scores used to estimate perceived stress levels did not overlap among people with MDD and people without depression.

They note, "This was not entirely unexpected, as PSS scores are known to be much higher in MDD samples; however, it does limit our ability to determine whether the maladaptive glutamate response we observed was driven primarily by the high severity of perceived stress in MDD, the presence of their current depression, or both."

"These results advance our understanding of the neurobiological adaptation to stress and may play a valuable role in identifying new treatment targets and markers of treatment response in human stress-related illness," the authors conclude.

Gastrointestinal

Does the gut microbiome contribute to health inequities? (Medical News Today: 20210618)

https://www.medicalnewstoday.com/articles/does-the-gut-microbiome-contribute-to-health-inequities#The-importance-of-breastfeeding

Researchers highlight the importance of breastfeeding for creating a healthy microbiome in the infant. Natalie McComas/Getty Images

People who belong to historically marginalized groups — whether based on race, gender, or sexual identity — have increased risks of several worse health outcomes.

The community of microbes in the gut, or gut microbiome, is sensitive to many environmental factors and helps shape health. It may therefore play a role in these disparities.

Writing in a leading journal, scientists have called for more research to tease apart this complex relationship.

They believe a greater understanding of how the gut microbiome affects health in minoritized populations can lead to targeted treatments to help redress the balance.

The communities of bacteria, fungi, and viruses that live in our gut, collectively known as the gut microbiome, have multiple effects on health. For example, they can protect the gut from colonization by pathogens, reduce inflammation, and even influence brain function.

A group of scientists led by Northwestern University in Evanston, IL, calls for more research into possible links between the gut microbiome of minoritized populations and worse health.

In an opinion piece in Proceedings of the National Academy of Sciences, they argue that the gut microbiome may respond to and help perpetuate the structural inequities caused by racism and other forms of discrimination.

Health inequities affect all of us differently. Visit our dedicated hub for an in-depth look at social disparities in health and what we can do to correct them.

High levels of stress and poor sleep quality as a result of discrimination, for example, may change the gut microbiome in ways that are detrimental to health.

In addition, researchers already know that environmental factors linked to lower socioeconomic status adversely affect the composition and diversity of the gut microbiome.

These factors include:

more cesarean deliveries

less breastfeeding of infants

a less healthful diet

overuse of antibiotics

poor access to green spaces

“Because the environments that drive [gut microbiome] composition are modifiable, the [gut microbiome] represents an important tool for mitigating the impact of structural inequities and their downstream health consequences,” the authors write.

Health in minoritized populations

The scientists also note that race, sexual identity, and gender status are significant predictors of many health outcomes.

For example, after accounting for socioeconomic status, Non-Hispanic Black adults are 1.6 times as likely to receive a diagnosis of diabetes as Non-Hispanic white adults.

According to an older report, gay, lesbian, and bisexual individuals are up to twice as likely as heterosexual individuals to report drug misuse, poor mental health, and smoking.

The authors argue that differences in their gut microbiome may mediate some health inequities in minoritized groups.

“Research has implicated the microbiome in most chronic diseases, and we know that there are disparities in most chronic diseases in which higher morbidity is observed in minoritized populations,” says lead author Katherine Amato, Ph.D., assistant professor of anthropology at the Weinberg College of Arts and Sciences at Northwestern.

She and her co-authors cite evidence that socioeconomic status has associations with distinct gut microbiome features in both adults and children.

For example, a small studyTrusted Source of 44 people in Chicago, IL, found that socioeconomic status accounted for up to 22% of the person-to-person variation in the diversity of the composition of the adult gut microbiome.

A larger study in the United Kingdom, which compared identical twins with divergent socioeconomic status to account for genetic and family influences, also found that people with lower socioeconomic status had less diverse gut microbiota.

The authors of the new opinion article conclude:

“[T]he existing literature demonstrates that the same social gradients that predict disparities in major classes of disease also predict variation in the [gut microbiome]. These relationships underscore the likely role of the [gut microbiome] in mediating socially driven health disparities.”

However, they emphasize that, to date, few studies have assessed how structural inequities affect the gut microbiome and health or how to redress the balance.

Stable and resilient gut microbiomes

"Biomedical" approaches to improve the gut microbiota of minoritized populations might include prebiotics, probiotics, and fecal transplants.

But the authors also recommend "ecological" approaches to create stable and resilient gut microbiota communities.

For example, Prof. Amato told Medical News Today that there is some evidence of greater antibiotic prescribing to the children of minoritized populations, though the picture is complex.

Lack of access to healthcare can result in reduced preventive care, more severe illness, and increased need for antibiotics due to worse infections or health-related procedures, such as surgery, she said.

On the other hand, other studies suggest that populations with good access to healthcare may receive more prescriptions for antibiotics for minor illnesses.

"So, greater antibiotic prescribing for infants and children of minoritized families could explain some of the observed differences in microbiomes between populations, but it will depend on the specific patterns of healthcare utilization observed in communities," she said.

"We need more data to understand these dynamics better," she added.

The importance of breastfeeding

Prof. Amato also advocated carefully tailored policies that promote the exposure of infants and children to the microbes that will help them establish a strong and healthy gut microbiome.

"Kids that are exposed to soil and plants during their outdoor time at school have been shown to have more diverse microbiomes and better markers of immune function — so it might not just be a matter of building a playground in a neighborhood but building it out of the right materials," she said.

In the United States, she observed, many employers have enlightened policies to provide space for mothers to pump breastmilk at work. But it may have unintended consequences for the gut microbiome of infants.

“While this allows mothers to fulfill infants’ nutritional needs, it ignores the fact that breastfeeding promotes skin-to-skin contact that facilitates microbial transmission from mother to infant,” she said.

“Breastmilk itself is also an important source of microbes and ‘microbe food,’ or oligosaccharides for infants, and we don’t know how storing breastmilk affects its microbial properties.”

She and her co-authors believe that future research should aim to deliver environmental interventions and develop therapies to restore and improve the microbiome of minoritized populations.

Of course, trying to ease the effect of discrimination by understanding these links is crucial. However, it does not, and should not, undermine efforts to tackle the underlying structural discrimination that impacts not only the gut microbiome but the person as a whole, their wider community, and society at large.