

News and Views

COVID-19 Vaccine Protection Better Maintained Against Severe Disease: Study

The protection induced by vaccines against coronavirus disease 2019 (COVID-19) infection seems to fade within a few months; however, the protection against severe disease appears to be better maintained, suggests a study published in *The Lancet*.

The study reported that protection wanes at different speeds, based on the type of vaccine. The nationwide, observational study, based on registry-data from the Public Health Agency of Sweden, the National Board of Health and Welfare, and Statistics Sweden, included around 1.7 million people in the main analysis, and the results were confirmed in a larger population of close to 4 million people. Investigators noted that protection against infection of any severity diminished after the peak reached 1 month after the second dose. Six months following immunization, the remaining protection against infection was 29% with two doses of Pfizer vaccine and 59% with two doses of Moderna vaccine. With the AstraZeneca jab, there appeared to be no remaining protection from a month and onwards.

Protection against severe illness was reported to be 89% after 1 month and 64% from 4 months and onwards over the remaining maximum follow-up period of 9 months... (*ET Healthworld – PTL, February 8, 2022*)

Vitamin D Deficiency Tied to Severe COVID-19: Study

A new study suggests that individuals with vitamin D deficiency are more prone to develop a severe or critical case of COVID-19.

Investigators in Israel assessed vitamin D levels in over 250 patients hospitalized at the Galilee Medical Center with a positive COVID-19 test from April 2020 through February 2021. The vitamin D levels were obtained from tests conducted prior to hospitalization, as part of routine examination or for vitamin D deficiency, ranging between 14 and 730 days before the positive COVID test. Patients with vitamin D deficiency were found to have a 14-fold higher likelihood of having a severe or critical case of COVID-19. Additionally, the mortality rate for those with insufficient vitamin D levels was 25.6%, while it was 2.3% among individuals with adequate vitamin D levels.

The results are published in the journal *PLOS ONE*... (*Medscape, February 8, 2022*)

Changing Diet could Add Years to Life: Study

According to a new study published in the journal *PLOS Medicine*, changing what we eat could add up to 13 years to our life, particularly if we start at a young age.

Investigators used available meta-analyses and data from the Global Burden of Disease study. They developed a model for what could happen to an individual's longevity if a typical Western diet is replaced with an optimized diet, with focus on less red and processed meat and more fruits, vegetables, whole grains, legumes and nuts. The study revealed that if a woman started eating optimally at 20 years of age, she could increase her lifespan by a little over 10 years. A man starting to eat a healthier diet from age 20 could add 13 years to his life.

When starting at age 60, a woman could add 8 years to her life, while men starting a healthier diet at age 60 may add about 9 years to their lifespan... (*CNN, February 8, 2022*)

Blood Pressure Risk with Long-term Paracetamol Use

According to a new study, published in the journal *Circulation*, individuals with high blood pressure (BP) who take prescription paracetamol could have an increased risk for heart attacks and strokes.

The study looked at 110 volunteers, with two-thirds of them taking drugs for high BP. The randomized trial allocated them to take 1 g of paracetamol 4 times a day or placebo for 2 weeks, followed by a 2-week washout period and then crossing over to the alternate treatment.

Paracetamol was shown to increase the BP of study participants. Regular intake of 4 g paracetamol increased systolic BP in people with hypertension by ≈ 5 mmHg in comparison with placebo.

The investigators advised that patients with chronic pain should be started on as low a dose of paracetamol as possible and patients with high BP and at risk of heart disease should be closely monitored... (*BBC, February 8, 2022; Circulation February 7, 2022*)

Effectiveness of Previous Infection in Preventing Reinfection with SARS-CoV-2 Variants

A previous COVID infection protects against symptomatic reinfection with severe acute respiratory syndrome coronavirus 2 (SARS-CoV-2) variants, according to a study from Qatar published February 9, 2022 in the *New England Journal of Medicine*.¹

This study conducted in the resident population of Qatar evaluated the effectiveness of previous COVID-19 infection in preventing reinfection with the different variants. Data was sourced from the national databases of test results, disease course and vaccinations. Cases detected between March 23, 2021 and November 18, 2021 were examined. A test-negative, case-control study design was used for this purpose. Only those cases where the cycle threshold (Ct) value was ≤ 30 and persons suspected to have symptoms compatible with COVID-19 were included. Vaccinated persons were excluded from the study. The median age of the participants ranged from 31 to 35 years. Previous infection was defined as positive reverse transcription-polymerase chain reaction (RT-PCR) at least 90 days before another positive test.

Analysis of data showed 90.2% effectiveness of previous infection in preventing reinfection with Alpha variant; the effectiveness against the Beta variant was 85.7%; against Delta variant, the effectiveness was 92.0%; while the effectiveness against the Omicron variant was found to be 56.0%.

Among the patients with reinfection, severe disease occurred in only 1 patient with the Alpha variant, two patients each with the Beta variant and the Omicron variant, while no patient with Delta variant progressed to severe disease.

There were no critical cases or deaths among patients with reinfection. The effectiveness against severe, critical or fatal disease was estimated to be 69.4% against Alpha, 88.0% against Beta, 100% against Delta and 87.8% against Omicron.

This study has demonstrated that previous infection provides robust protection against reinfection with the Alpha, Beta and Delta variants of SARS-CoV-2. Although comparatively the degree of protection against reinfection with the Omicron variant was lower, it was still significant at roughly 60%.

Reference: ¹Altarawneh HN, et al. Protection against the Omicron variant from previous SARS-CoV-2 infection. *N Engl J Med*. 2022 Feb 9;NEJM2200133.

Risk of New Cardiovascular Problems Increases after COVID-19 Infection

According to a new study, long after recovery from COVID-19 infection, people have a significantly higher risk for developing new cardiovascular problems.

Investigators at the US Department of Veterans Affairs compared the rates of new cardiovascular problems among 1,53,760 people infected with COVID-19 before vaccines were available, 5.6 million individuals who did not contract the infection, and 5.9 million individuals whose data was obtained prior to the pandemic.

After an average of 1 year following recovery from the acute phase of infection, COVID-19 survivors appeared to have a 63% higher risk for heart attack, 69% higher risk for irregular heart rhythm, 52% higher risk for stroke, 72% higher risk for heart failure and about threefold higher risk of potentially fatal blood clot in the lungs, when compared with the other two groups. The increased risks noted in COVID survivors were observed in young and old, Blacks and Whites, males and females, those with and without diabetes, those with and without kidney disease, and among those who smoked and nonsmokers, noted researchers.

The findings are published in *Nature Medicine*... (*Reuters, February 10, 2022*)

Non-COVID Respiratory Infections Bounce Back Once Pandemic Restrictions are Relaxed

A recent study from Israel has reported an increase in the incidence of non-COVID respiratory infections in the first 3 months in all age groups after the COVID-19 restrictions were relaxed. Published in the journal *JAMA Network Open*, the study cautions about similar scenarios in other countries after restrictions are relaxed, which may pose a challenge to the healthcare system in concurrence with the threat of emergence of new SARS-CoV-2 variants.

Researchers evaluated 3,86,711 patients who attended 209 community clinics from January 2017 through June 2021 with complaints of respiratory and gastrointestinal illnesses in this cross-sectional study. There were more than 1.2 million clinic visits. The mean age of the participants was 27 years and men comprised just over half of the study population (52.3%). Visits that led to symptomatic diagnoses, such as fever, cough or diarrhea, recurrent diagnoses within 7 days, and diagnoses of confirmed COVID-19 were not included in the study group. The study sought to investigate the incidence rates (IRs) of infectious diseases from April to June 2021 when the COVID restrictions were lifted.

The rates of non-SARS-CoV-2 respiratory and gastrointestinal infection were found to be significantly high in children aged ≤ 3 years (IR ratio 2.64) in the 3 months after lifting of restrictions. And, all age groups included in the study showed a very high incidence of non-COVID respiratory infections (IR ratio 1.74).

Older adults, aged ≥ 80 years, reported more of non-SARS-CoV-2 upper respiratory tract infections (IR ratio 1.20) and lower respiratory tract infections (IR ratio 1.38), but less gastrointestinal infections (IR ratio 0.90).

This study highlights that the restrictions imposed on account of the pandemic also reduced the incidence of non-COVID infectious diseases, such as flu, but relaxation of the restrictions saw a rise in their incidence. This was particularly evident in children younger than 3 years of age. Less adherence to personal protective behaviors, such as physical distancing, mask wearing and hand washing, may account for this rebound in infections.

Reference: ¹Amar S, et al. Prevalence of common infectious diseases after COVID-19 vaccination and easing of pandemic restrictions in Israel. *JAMA Netw Open.* 2022;5(2):e2146175.

One in Three Elderly Develop New Conditions after COVID-19: Study

A new observational study published in the *BMJ* suggests that around one-third of older adults infected with COVID-19 in the year 2020 developed at least one new health condition that called for medical attention in the months after initial infection.

Investigators in the US noted that the conditions involved several major organs and systems, including the heart, kidneys, lungs and liver, and mental health complications.

Health insurance plan records were used to identify 1,33,366 individuals aged 65 years or older in 2020, diagnosed with COVID-19 prior to April 1, 2020. They were matched to three non-COVID comparison groups from 2020, 2019 and a group with viral lower respiratory tract disease. Any persistent or new conditions or sequelae beginning 21 days following a diagnosis of COVID-19 were noted. The investigators determined the excess risk for conditions fuelled by the disease over several months on the basis of age, race, sex and whether the patients were hospitalized for COVID-19. Among the people diagnosed with COVID in 2020, around 32% needed medical attention in the post-acute period for one or more new or persistent conditions. This figure was 11% higher than the comparison group from 2020... (*NDTV – PTI, February 10, 2022*)

History of Pancreatitis Tied to Severe COVID-19 Outcomes

According to a retrospective study published in the journal *Gastroenterology*, history of pancreatitis was associated with a higher risk for severe outcomes after a COVID-19 diagnosis. The study included more than 3,25,000 patients with COVID-19. According to adjusted analyses, patients with pre-existing pancreatitis appeared to have a higher risk for COVID-related hospital admission (odds ratio [OR] 1.23) and mortality (hazard ratio [HR] 1.16), in comparison with those without pancreatitis.

Additionally, as pancreatitis progressed, the risk of COVID-related hospitalization increased (OR 1.16 for single episode acute, 1.28 for recurrent acute and 1.50 for chronic pancreatitis). Among patients with acute pancreatitis, the higher risk for hospitalization and death were observed only among those who had an episode within the previous 5 years (OR 1.27 for hospitalization; OR 1.25 for death)... (*Medpage Today, February 10, 2022*)

Novel Stroke Risk Score for COVID-19 Patients

A quick and easy scoring system has been developed to predict which hospitalized COVID-19 patients have a greater risk for stroke.

The new system, presented at the 2022 International Stroke Conference (ISC), will help clinicians stratify the patients and assist with closer monitoring of those who have the highest risk for stroke. Investigators used the American Heart Association (AHA) Get with the Guidelines COVID-19 cardiovascular disease registry for the analysis. A total of 21,420 adult patients (mean age 61 years), who were hospitalized with COVID-19 at 122 centers between March 2020 and March 2021 were assessed. Among the hospitalized COVID-19 patients, 312 (1.5%) had a cerebrovascular event.

Researchers used standard statistical models to identify the risk factors most associated with the development of stroke and six such factors were identified, including history of stroke, no fever at the time of hospital admission, no history of pulmonary disease, elevated white blood cell count, history of hypertension and raised systolic BP at the time of hospital admission.

The scoring system assigns points for each variable, with more points pointing to a higher risk of stroke. Researchers also used a machine-learning approach wherein a computer takes all the variables and determines the best algorithm to predict stroke. The machine-learning algorithm was reported to be as good as the standard model... (*Medscape, February 10, 2022*)

Pfizer, Moderna Booster Dose Efficacy Declines after 4 Months: Study

According to a new study by the US Centers of Disease Control and Prevention (CDC), the efficacy of a third dose of the Pfizer and Moderna COVID-19 vaccines declines considerably by the 4th month following administration.

The results of the study are based on over 2,41,204 visits to the emergency department or an urgent care clinic, and 93,408 hospital admissions, which were more serious, among adults with COVID-like illness, between August 26, last year and January 22, this year.

Investigators determined vaccine efficacy by comparing the likelihood of a positive COVID-19 test between vaccinated and unvaccinated patients. During the period when Omicron variant was predominant, vaccine efficacy against COVID-related emergency department or urgent care visits was 87% in the 2 months after a third jab, while it declined to 66% by the 4th month. Efficacy against hospitalization was 91% in the first 2 months, and dropped to 78% by the 4th month after the third shot... (NDTV – AFP, February 12, 2022)

Body Fat Associated with Lower Bone Density, Especially in Men

Higher body fat is linked to lower bone mineral density (BMD), especially in men, suggests an analysis of data from a large, nationally representative sample, published in the *Journal of Clinical Endocrinology & Metabolism*.

Investigators assessed the relationship between BMD and body composition in 10,814 men and women, 20 to 59 years of age, from the National Health and Nutrition Examination Survey (NHANES) 2011 to 2018. Lean mass was found to have a strong positive correlation with bone density, while fat mass had a moderate negative effect. An added kg/m² of fat mass index (FMI) was linked to a 0.10 lower T-score, the number of standard deviations from the likely bone density in a young adult. The negative effect appeared to be greater among men, with a 0.13 lower T-score for each additional 1 kg/m² of FMI, in comparison with 0.08 lower T-score among women. Additionally, the effect was most marked in individuals in the highest FMI quartile... (Medscape, February 11, 2022)

DASH and Mediterranean Diet may Reduce Risk for NAFLD, Especially in Women

According to a study conducted in Iran, the Mediterranean diet (MeD) and the Dietary Approach

to Stop Hypertension (DASH) seem to have an inverse correlation with the development of nonalcoholic fatty liver disease (NAFLD), especially among women.

The analysis included 3,220 adults from 2016 to 2017 and noted that those who followed DASH and MeD with the highest tertiles of adherence had the lowest risk for NAFLD with an OR of 0.80 for DASH and 0.64 for MeD. According to stratified analyses, there was a stronger association among women (OR 0.42 for MeD; OR 0.72 for DASH), while the association was not significant among men, noted the researchers.

The findings are published in *Nature Scientific Reports...* (Medpage Today, February 11, 2022)

CDC Updated Guidance Reduces Booster Interval for Immunocompromised Persons

The CDC recommends a 3-dose primary mRNA COVID-19 vaccine for primary vaccination for the moderately or severely immunocompromised persons aged ≥5 years; the third dose is given at a gap of at least 1 month after the second dose. This is followed by a booster dose for those aged ≥12 years.

In its updated guidance, the CDC has shortened the duration for booster dose following primary vaccination for immunocompromised persons.

The moderately or severely immunocompromised persons who have taken an mRNA COVID-19 vaccine for the primary series are now advised to take a booster dose 3 months after the third dose for a total of four doses. The earlier recommended interval was 5 months. These recommendations apply to those who took the Moderna vaccine (≥18 years) as well as those who received the Pfizer-BioNTech vaccine (≥12 years).

Immunocompromised people who have received Johnson & Johnson's (J&J) COVID-19 vaccine should preferably take an mRNA vaccine for the booster dose. A single booster dose is recommended at least 2 months after the second (additional) dose, for a total of 3 doses, i.e., one J&J vaccine dose followed by one additional mRNA vaccine dose at least 4 weeks later and then one booster dose.

Moderna vaccine should be used in a dose of 50 µg (0.25 mL) for the booster shot.

Source: *Interim Clinical Considerations for Use of COVID-19 Vaccines Currently Approved or Authorized in the United States*, CDC. <https://www.cdc.gov/vaccines/covid-19/clinical-considerations/covid-19-vaccines-us.html#vaccination-people-immunocompromised>