Israel’s Real-life Evidence That Vaccine Can Prevent Severe COVID-19

After Israel’s national campaign vaccinated more than three-fourths of adults 70 years or older against SARS-CoV-2, the need for mechanical ventilation among patients with COVID-19 in that age group declined dramatically.

The country’s vaccination campaign began in December 2020 by prioritizing adults 60 years or older, health care workers, and those whose chronic medical conditions increased their risk of severe COVID-19. By February, 84% of adults 70 years or older had received 2 doses of the Pfizer-BioNTech vaccine. To determine whether the vaccinations prevented severe disease, researchers calculated the ratio of patients aged 70 years or older to those aged 50 years or younger with COVID-19 who required mechanical ventilation. The younger group was chosen as a comparator because its 2-dose vaccination coverage was only about 10% as of February.

From October to December 2020, before the vaccination campaign began, a daily median of 84 patients aged 70 years or older required mechanical ventilation compared with 15 patients aged 50 years or younger—a ratio of about 6 to 1. By February, that ratio fell by two-thirds to about 2 to 1. The authors noted that their analysis, along with preliminary evidence posted on a preprint server, provide real-world evidence that the vaccines effectively protect against severe disease.

“The findings from this study provide preliminary but important evidence of the effectiveness of vaccines in preventing severe cases of COVID-19 at the national level in Israel,” the authors wrote. “Receipt of COVID-19 vaccines by eligible persons can help limit spread of disease and potentially reduce the occurrence of severe disease.”

More Severe Obesity Leads to More Severe COVID-19 in Study

The greatest risk of developing severe COVID-19 and being hospitalized with the disease or dying of it was in patients with the highest body mass index (BMI) scores, according to a CDC report.

About 40% of US adults are obese, which some recent reviews suggest puts them at greater risk of severe COVID-19 due to chronic inflammation, reduced immune response, or blunted treatment response. Using data from nearly 150 000 US adults diagnosed with COVID-19 from March to December 2020, the analysis showed that half of the patients were obese and about 28% were overweight based on BMI—calculated as weight in kilograms divided by height in meters squared. Among them, the risk of hospitalization, admission to the intensive care unit, and death were lowest among patients whose BMI was in the healthy range of 18.5 to 24.9 or just above it. The risks rose sharply as BMIs increased.

The relative risk of mechanical ventilation among individuals with the highest BMIs of 45 or greater was up to double that of patients with a healthy weight. In addition, the highest BMIs were linked with a 61% increased risk of death and a 33% increased risk of hospitalization compared with healthy weight. Patients with a BMI between 30 and 34.9 had a 7% increased risk of hospitalization, an 8% increased risk of dying, and a 35% increased risk of mechanical ventilation compared with patients in the healthy weight category.

“The findings in this report highlight a dose-response relationship between higher BMI and severe COVID-19–associated illness and underscore the need for progressively intensive illness management as obesity severity increases,” the authors wrote. “Preventing COVID-19 in adults with higher BMIs and their close contacts remains important and includes multifaceted protection measures such as masking, as well as continued vaccine prioritization and outreach for this population.” — Bridget M. Kuehn, MSJ

Note: Source references are available through embedded hyperlinks in the article text online.