

Covid-19 vaccination reduces mortality also in critically ill corona patients

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A study from the University of Vienna shows a positive effect of vaccination even in patients requiring oxygen.

Previous studies have shown that the mortality rate of Corona patients hospitalized and requiring oxygen therapy is similar no matter if they are vaccinated or unvaccinated. An international research team led by David Gómez-Varela from the Department for Pharmaceutical Sciences at the University of Vienna has now disproved these findings in a comprehensive multicontinental analysis published in the high-impact *Journal of Medical Virology*: The number of deaths of hospitalized patients would have been 22% lower if all unvaccinated, oxygen-dependent individuals had been vaccinated.

Healthcare systems and economies worldwide have suffered from the Corona pandemic. Vaccines are now available that can prevent hospitalizations in up to 90% of cases and reduce deaths. Nevertheless, 5% of those vaccinated also become severely ill and develop a life-threatening clinical disease. This includes systemic inflammation, lung damage and blood clotting disorders. This highly vulnerable group of patients includes the elderly, people with (multiple) pre-existing conditions, or those with weakened immune systems.

Vaccination for very vulnerable groups does not work?

Results of previous and less extensive studies showed that the mortality rate of vaccinated and unvaccinated hospitalized corona patients on oxygen therapy was almost the same. This raised doubts and fueled anti-vaccination arguments, as to whether vaccination of the aforementioned vulnerable risk groups makes sense at all. To address these concerns, the team led by David Gómez-Varela retrospectively evaluated data from more than 20,000 corona patients using statistical analyses between January 2020 and May 2022 as part of a larger, multinational study. Individuals from 148 hospitals from different countries and continents were included. Particular attention was paid to the special clinical characteristics of each patient group, which had not been taken into account in previous studies. Thus, it was possible to critically examine whether patients with (moderately) severe corona disease also benefit from vaccination.

Very vulnerable groups benefit from vaccination

And in fact, looking at the data adjusted for the higher burden of comorbidities and risk factors, a completely different picture emerged: "22% of all deaths in hospitalized and oxygen-dependent individuals would have been preventable if all of these patients had been vaccinated," says study leader David Gómez-Varela. The large number of patients studied and their ethnic and geographic diversity support the credibility and relevance of the results. "Our study and its results are of high relevance in that it can better inform updated vaccination schedules for many millions of people who are among the most vulnerable groups," says Gómez-Varela. "To make such important public health decisions, science-based understanding of the actual impact of the Covid 19 pandemic and vaccination coverage on mortality is of the utmost importance."

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Ivan A. Huespe, Augusto Ferraris, Antonio L. Blanco, Pascual Ruben Valdez, Maria Leticia Peroni, Luis Alejandro Cayetti, Matias A. Mirofsky, Bruno Boietti, Ricardo Gómez-Huelgas, José Manuel Casas-Rojo, Juan Miguel Antón-Santos, Jesús Millán Núñez-Cortés, Carlos Lumbreras, José Manuel Ramos-Rincón, Noelia García Barrio, Miguel Pedrera-Jiménez, María Dolores Martín-Escalante, Francisco Rivas Ruiz, María Ángeles Onieva-García, Carlos Reyes Toso, Marcelo R. Risk, Riku Klén, Javier A. Pollán, David Gómez-Varela: COVID-19 vaccines reduce mortality in hospitalized patients with oxygen requirements: Differences between vaccine subtypes. Multicontinental cohort Study. In: *Journal of Medical Virology* (2023)

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