COVID-19 vaccination decrease the risk of Intensive Care Unit hospitalisation in heart failure patients even in the time of Omicron variant: population based study

J. Parenica1, J. Jarkovsky2, K. Benesova2, J. Hlasensky1, M. Miklikova1, P. Kala1, T. Ondrus1, P. Lokaj1, L. Dusek2

1 University Hospital Brno and Masaryk University, Brno, Czechia; 2 Institute of Biostatistics and Analyses of Masaryk University, Brno, Czechia

Background: Heart failure (HF) patients, especially those in higher age, are at high risk of severe course of COVID-19.

Purpose: The aim of this work was to compare the risk of the necessity of intensive care being provided in the Intensive care units in HF patients with and without COVID-19 vaccination in the time of Omicron variant.

Methods: The analysis was done on data from the National Health Information System, which was supplemented with data from the Information System of Infectious Diseases.

Results: At the beginning of 2022, we estimate a total of 128,848 HF patients. Of these, 52.5% were men, mean of age (±SD) was 71.8 (±11.6) years, mean of age of women was 78.2 (±10.7). In January 2022, 560,886 cases of COVID-19 were diagnosed in the Czech Republic (5,241.1 cases per 100,000 population), the mean of the age was 32.5 (±18.3) years. At this time, the Omicron variant prevailed in the Czech Republic. Total 1,667 COVID-19 cases were HF patients, 56.3% were men. Not vaccinated were 420 patients, vaccinated without booster were 556 patients and vaccinated with booster were 691 patients. The risk of hospitalisation within 14 days from COVID-19 diagnosis was 46.7% (95% CI 41.5%; 51.8%) in not vaccinated group, 37.0% (32.9%; 41.2%) in vaccinated group and 22.6% (19.8; 26.0%) in vaccinated with booster group. The risk of the necessity of intensive care being provided in the Intensive care units was 11.1% (7.7%; 14.5%) in not vaccinated group, 4.7% (2.8%; 6.6%) in vaccinated group and 3.7% (2.0%; 5.4%) in vaccinated with booster group (Figure 1).

Conclusion: COVID-19 vaccination decrease the risk of Intensive Care Unit hospitalisation in heart failure patients even in the time of Omicron variant.

![Figure 1](https://academic.oup.com/eurheartj/article/43/Supplement_2/ehac544.1077/6744594)