Quality of care and long-term outcomes for patients admitted with heart failure across the pandemic. A nationwide study

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Background: The COVID pandemic disrupted healthcare systems and delivery of care for patients with heart failure (HF), leading to fewer hospitalisations and an increase in mortality. However, to date, no data are available on the in-hospital quality of care and longer-term outcomes across the pandemic period. The present study investigates the quality of care and long-term outcomes before, during and after the COVID pandemic.

Methods: We used linked, routinely collected data from 3 large national registries in England & Wales (The National Heart Failure Audit, Hospital Episode Statistics, and the Office for National Statistics) for secondary care to investigate management and outcomes for patients with HF. We compared clinical characteristics and long-term events of interest according to the admission period (pre-COVID (2018–2019), COVID (2020), and post-COVID (2021-2022)) and the type of HF (i.e. with reduced [HFrEF] or normal ejection fraction [HFnEF]).

Results: Data for 257,873 patients who experienced 337,923 primary HF admissions were analysed. Although statistically significant differences were observed, the clinical characteristics of patients admitted with HF across the pandemic were similar. The median age at admission was 81 years [IQR 72;88], 55% were men (n = 140,783), and more than two-thirds were of white ethnicity (87%, n = 113,912). Approximately half of the patients were admitted with moderate-to-severe peripheral oedema (53%, 124,316), and 76% of patients (n = 185,541) were in NYHA class III or IV. HFrEF accounted for 59% (n = 115,278), while 41% (n = 80,799) had HFnEF. In-hospital mortality was similar across the three periods (OR 1.02; 95% CI 0.98 – 1.06; p = 0.3 for the COVID period and OR 0.98; 95% CI 0.94 – 1.01; p = 0.1 for the post-COVID period). A shorter length of stay was observed during the pandemic compared to the pre- and post-COVID period (7 days [IQR 3;14] vs 6 days [3;12] vs 7 days [3;14] respectively, p<0.001). At discharge, both during and post COVID, a higher percentage of HFrEF patients were on disease-modifying medications compared to the pre-COVID period (p<0.001) Long-term outcomes were significantly worse during the COVID pandemic and improved in the post-COVID period (p<0.001, Figure 1). Being admitted during the COVID pandemic was not independently associated with longer-term mortality (HR 1.09; 95% CI 0.98 - 1.22; p = 0.09) while being admitted after the COVID pandemic was independently associated with better longer-term outcomes on multivariable analysis (HR 0.90; 95% CI 0.83 – 0.99; p = 0.003).

Conclusion: Despite disruption of healthcare systems, the clinical characteristics of patients admitted were clinically similar and the standard of care maintained throughout the pandemic. In-patient management was characterised by a shorter length of stay but a slightly higher rate of prescribing of guideline-recommended therapies. Long-term survival of patients with HF improved after COVID, especially for HFrEF.
Kaplan-Meier for long-term survival.