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LETTER

CARDIOVASCULAR MEDICINE

Patients perspective on the effect of COVID-19 on heart failure admissions

In the UK 221 967 patients were admitted to hospital with decompensated heart failure in 2018/19.[1] The average length of stay for such a patient is 9 days.[2] Patients with heart failure account for a large number of medical admissions and 50% of those admitted with heart failure are either readmitted or die within 12 months of their initial admission date.[3]

During the first wave COVID-19 pandemic we saw a large fall in the number of acute heart failure admissions consistent with national data showing a 66% reduction between March and April 2020.[4,5] We conducted a telephone survey of heart failure patients to try to understand the possible reasons behind the reduction in admissions between June and July 2020.

The study was approved as a service evaluation project by the Leeds teaching hospitals NHS Trust Research and Innovation Department.

In 2019, 759 patients were admitted with heart failure. Of these, 333 patients had a diagnosis of severe LVSD and formed the study population. Six were excluded due to being nursing home residents and 128 had died. We were unable to contact 52 patients. Thus, we were able to interview 147 patients. Three experienced cardiac research nurses conducted the telephone survey. A standard set of questions (Table 1) were posed to each patient to ensure consistency. We did not use open ended questions.

The median age of patients in this cohort was 72 years (range 26-96 years). A large number (81%) considered themselves vulnerable and 66.7% of patients had restricted their physical activity (although this was being encouraged by the UK government) (Table 1). Compliance with medication appeared to be better, but a number of patients were reluctant to seek medical attention due to the fear of contracting COVID-19 (Table 1). As this was a "single time point" survey, we did not collect data on re-hospitalisation.

Through these questions we were able to infer that most of the patients we spoke to had in fact been well and had not needed to seek medical advice. This was regardless of age and gender. The majority of this patient group were shielding at home, were not going out and partaking in their usual activities.

In our cohort, symptoms remained stable, although there appeared to be a fear amongst patients about seeking medical advice and a reduction in physical activity. Interestingly, patients were more compliant with their medication which together with the distress of coming into contact with COVID-19 during hospital stays may be partially responsible for the reduction in admissions.

TABLE 1 Telephone interview responses

Question	Yes (%)	No (%)
Do you classify yourself as a vulnerable patient during the COVID-19 Pandemic?	119 (81)	28 (19)
Have you had to seek medical advice about your heart failure from your GP during the COVID-19 pandemic?	12 (8.2)	135 (91.8)
Have you had to seek medical advice about your heart failure from the hospital during the COVID-19 pandemic?	7 (4.8)	139 (94.6)
Have you had to seek medical advice about your heart failure from the nurses during the COVID-19 pandemic?	12 (8.2)	134 (91.2)
Have you restricted your physical activity during the COVID-19 pandemic?	98 (66.7)	49 (33.3)
Do you think you have been more vigilant in taking your medicines during the COVID-19 pandemic?	51 (34.7)	96 (65.3)
Have you altered the dose of your diuretics yourself during the COVID-19 pandemic?	9 (6.1)	137 (93.2)
Have you been ill and not called for medical help because you were worried about COVID-19?	15 (10.2)	132 (89.8)
Has your heart failure been stable during the COVID-19 pandemic?	120 (81.6)	26 (17.7)
Have you been offered hospital admission but chose not to go because of COVID-19?	7 (4.8)	140 (95.2)

There are a number of factors that result in clinical exacerbation of heart failure including medication adherence, excessive salt and fluid intake, infections, and arrhythmias.[6] Our results demonstrate that 34.7% changed their behaviour during the pandemic to be more vigilant with their medications, and an important reason why they did not decompensate.

Viral infections and stress resulting in cardiomyopathy are known aetiologies of de novo acute heart failure and acute decompensation of heart failure.[7] It could be hypothesised that the reduction in hospital admissions could be associated with the lack of exposure to common viruses as a consequence of national lockdown, shielding and protective personal equipment (PPE) as patients are less likely to come into contact with respiratory viruses.

The stability in heart failure reported by the patients interviewed may be attributable to the reduction in their physical activity, as a patient's symptom burden may be reduced if they were exerting themselves less frequently during "lockdown." Patients with chronic heart failure are known to suffer with muscle atrophy and sarcopenia for which resistance exercise is an important therapy.[8] Our results illustrate that the majority of patients reported a reduction in physical activity during the "lockdown" period. This is potentially concerning as deconditioning in the context of heart failure may adversely affect prognosis and outcomes. In the short term a low level of activity may be useful but over a period of time detraining can be detrimental.[9] The lack of access to cardiac rehabilitation as a result of national lockdown and the cumulative months of reduced activity throughout the pandemic may result in deterioration of patients' exercise tolerance, potentially precipitating increased morbidity in this cohort. Hidden morbidity may also extend to nutrition. Perhaps telerehabilitation may play an important role in managing this.[10] Further research on heart failure admissions throughout national lockdown and as it was gradually eased in July, 2020 is required to ascertain whether more patients presented with acute decompensation and if indeed they had poorer outcomes. As face-to-face clinics are slowly being reintroduced, the subjective symptom burden, and its course over the pandemic, of a patient is of much interest. It would also be important to note if there was an increasing trend of outpatient clinics observing a rise in decompensated patients upon review, and whether clinic-to-ward admission rates are affected as a result of the patient behaviour during lockdown.

The limitations of our study include being a single-centre study and a relatively small sample size. Furthermore, we only evaluated patients with previous hospitalisation for heart failure with severe LVSD, and did not collect follow up data on rehospitalisation. New onset heart failure patients, stable heart failure patients not requiring hospitalisation, and previous admissions prior to 2019 were not included in our search. Nevertheless, this structured interview is a unique insight into how a cohort of patients with severe LVSD managed themselves during the first wave of the epidemic.

This small study provides potential explanations for why heart failure admissions may have been lower during the first wave of the COVID-19 pandemic. The majority of patients were stable, but many reported they exercised more vigilance, reduced physical activity and a small number were apprehensive of accessing medical attention. These preliminary findings should be explored in a larger study as they have potential implications on how patients with heart failure can be managed during a pandemic.

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