Optimising the Management of Patients with Heart Failure with Preserved Ejection Fraction in Primary Care

Work Package 1 Protocol:

Management of Patients with Heart Failure with Preserved Ejection Fraction: What do Patients and Providers Need and Want?

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Trial Title	Management of Patients with Heart Failure with Preserved Ejection Fraction: What do Patients and Providers Need and Want?
Short Title	HFpEF (Qualitative) Patients & Providers
Trial Design	Qualitative study using semi-structured interviews and framework analysis.
Trial Participants	Patients with Heart Failure with Preserved Ejection Fraction (HFpEF), health care providers (HCP) from primary care and specialist services, and commissioners.
Planned Sample Size	Approximately 50 patients, and 50 providers and commissioners
Follow-up Duration	No follow up required
Planned Trial Period	27 months: January 2018 to May 2020.
Objectives	We hypothesise that outcomes of patients with HFpEF can be improved through optimising their management and self-management, and increasing coordination between primary care and specialist services. We believe that patients and healthcare providers will have useful ideas and perspectives on management and self-management of HFpEF, and how it can be supported. Specific Objectives: 1) Explore patients' understanding of and perspectives on HFpEF and comorbidities; 2) Describe patient strategies for monitoring and managing symptoms, medications, exercise and diet; 3) Determine patient preferences related to care and support needed; 4) Explore providers' (GPs, practice nurses and Heart Failure (HF) Specialists) and commissioners' understanding of and perspectives on managing HFpEF and comorbidities, organisation of care, the type of support feasible to provide in primary care, and collaboration between primary and specialist services. Amendment: The aim of this proposal is to determine clinical management strategies for patients with HF and HFpEF by primary care and specialist providers during and after the pandemic. The specific research questions are: 1. How are patients with HF and HFpEF being managed (telephone consultation, video-conferencing, home visits, clinic visits, postponement) during the pandemic crisis and lockdown? 2. How effective do providers and patients think non face-to-face methods of consultation and current strategies are for patients with HF and HFpEF? 3. What are the expected consequences of the pandemic on management of people with long-term conditions such as HF and HFpEF? 4. What are potential changes to practice (primary care, specialist services) as a result of the COVID-19 pandemic? 5. What methods and strategies are planned and/or needed for managing patients with HF and HFpEF once health care provision returns to 'normal'?

	6. How could health care services be re-designed to ensure greater flexibility to meet the challenges of catastrophic events such as this pandemic?	
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2.0 Plain English Summary

Heart failure (HF) is a condition in which the heart does not work well to pump blood around the body. About half of patients with HF have a type of HF in which the heart is very stiff, which is more common in older people with a history of high blood pressure, obesity and diabetes. It is harder to diagnose and is less well recognised and understood. No specific drugs have been found to help this type of HF, except for diuretics or 'water pills'. Controlling blood pressure and blood sugar, and being active are recommended for patients with this HF. Most patients are managed in primary care sometimes in collaboration with specialists. In this study we want to ask patients with this type of HF about their challenges, how they manage HF and their other conditions, and ask patients, primary care providers, HF nurses and doctors, and commissioners about what they think will improve management and how to organise care. We will recruit and obtain consent from approximately 50 patients from a wide range of backgrounds and 50 healthcare providers from primary care and HF specialist services to talk to us. At times patients' carers may wish to provide information and contribute to the interview. When this happens, with their consent, we will note their comments and include these in the study. Interviews can be by telephone or in a place of the person's choosing, and will be audio-recorded and transcribed. It is confidential: no identifying information will be on the interviews or written transcripts so no one will know who it is. We will use what people tell us to improve the management of this type of HF: to help patients manage symptoms and have better quality of life, and to make sure that patients get the right care. We will talk to patient groups and providers about what people have told us, and use the information as part of a programme of research to improve management.

2.1 Background and Rationale

Approximately half of patients with HF will have a preserved ejection fraction (HFpEF) rather than a reduced ejection fraction (HFrEF), especially among older patients (1,2). HFpEF is less well understood and less easily diagnosed than HFrEF, and often not identified in primary care (3). Patients are usually older with multiple comorbid conditions such as obesity, hypertension and diabetes, and more likely to be women (4). HFpEF has been labelled a 'stealth syndrome', and better understanding and treatment called an urgent priority (5). HFpEF greatly affects patient well-being: patients with HFpEF reported greater consequences of HF on their lives, more symptoms and the same or worse quality of life than those with HFrEF (6,7). Epidemiological trends in the US has shown hospitalisations for HFpEF increasing, while those for HFrEF were decreasing; however both groups experienced readmission rates of 29% in 60-90 days (8). In-hospital mortality for HFpEF in studies was 2.5-6.5%, with 6 month mortality rates of 14-16%, similar to HFrEF (9).

Unlike HFrEF, HF specific pharmacological therapy (ACE inhibitors, beta blockers) has not been shown to improve morbidity and mortality in HFpEF (10). Thus age, comorbidity and lack of evidence-based treatment in an under-recognised type of HF pose a challenge for improving outcomes. However, others argue that management of comorbidities is key to managing HFpEF given that these conditions are thought to drive the development of HFpEF through promotion of inflammation (11,12). Class I recommendations in the latest European guidelines are to manage comorbidities and use diuretics to manage fluid status as needed (10). Providers and patients may be uncertain about what can be done to manage HFpEF, or to better organise care. Previous studies in HF have shown challenges in diagnosis, provider knowledge, and in organisation of services with fragmentation and discontinuity being common (3,13). Self-management in HFpEF is little explored. Similar to HFrEF patients with HFpEF will need to monitor fluid retention, blood pressure and potentially blood glucose, whilst managing symptoms, medications, diet and physical activity.

Most studies of self-management in HF have focused on patients with HFrEF and the HF alone rather than HFpEF plus comorbidities. Studies of HF self-management that have reported including both HFrEF and HFpEF did not provide specific information regarding patients with HFpEF, or proportion in the sample (14), and in one study the mean age (57 $\pm$ 13) and mean ejection fraction (28.4 $\pm$ 12) made it unlikely that there were many patients with HFpEF (15). Patients with either HFpEF or HFrEF are likely to face similar challenges in self-management, and need pro-active support and timely communication with familiar providers (14).
Given the uncertainty and lack of evidence for management and self-management of this patient group, it is important to determine what patients and providers are currently doing and what they wish for in terms of

management and support. The purpose of this study is to explore primary care providers', HFSNs' and patients' perspectives on management and self-management of HFpEF and comorbid conditions, the type of support needed and what is feasible to provide optimal management.

2.3 Hypothesis and Aims

We hypothesise that outcomes of patients with HFpEF can be improved through optimising their management and self-management, and increasing coordination between primary care and specialist services. We believe that patients and providers will have useful ideas and perspectives on management and self-management of HFpEF, and how it can be supported.

3.0 Abstract

Approximately half of patients with heart failure (HF) have heart failure with preserved ejection fraction (HFpEF), and are usually older with multiple comorbid conditions. HF-specific medications used in HF with reduced EF have not been found to reduce mortality and morbidity in HFpEF, but management of comorbidities is essential as these contribute to development and progression of HFpEF. Providers and patients may be uncertain about what can be done to manage HFpEF. The purpose of this study is to explore patients' and providers' perspectives on management, self-management, support needed and its feasibility.

4.0 Objectives

1) Explore a variety of patients' (including those from Black and minority ethnic groups) understanding and perspectives of HFpEF and comorbidities
2) Describe patient strategies for monitoring and managing symptoms, medications, exercise and diet
3) Determine patient preferences for care
4) Explore healthcare providers' understanding of and perspectives on managing HFpEF and comorbidities, organisation of care and type of support feasible

5.0 Methods

Qualitative study employing semi-structured interviews with patients and healthcare professionals. Patients may be supported by an informal carer for the interview.

6.0 Patient Sample

Approximately 50 patients with HFpEF; and approximately 50 health care providers to include general practitioners, practice nurses, heart failure specialist nurses, cardiology consultants to be recruited from 3 regions in UK (Cambridgeshire, Greater Manchester, Northwest Coast & West Midlands). Patients: Around 50 patients identified with HFpEF across the above 3 regions in England. This number of participants may increase if there are new themes arising from interviews as the intent will be to reach data saturation. We will recruit patients from practices both rural and urban, and will work to include fairly equal numbers of women and men, and a variety of comorbid conditions. Our current investigation indicates that 40% of patients on HF registers can be identified as HFpEF or probable HFpEF.

We will invite patient participants initially from a purposive sample of practices through the Cambridgeshire and Peterborough clinical commissioning group (CCG), and the primary care clinical research network in the East of England, including those referred to specialist services in Cambridgeshire and Peterborough. Estimating a 50% recruitment rate, we would need 3-4 practices with HF registers of 50-100 patients to recruit our initial sample. We will then add additional sites in the North of England to our study; specifically secondary care centres and primary care practices located in the CRNs of Greater Manchester, Northwest Coast and West Midlands. The sites will purposively recruit patients to ensure additional participation from black and minority ethnic groups (BME), different ages and comorbidities, and providers and commissioners working within different systems and CCGs. Adding these sites will develop our understanding iteratively and enable us to determine commonalities and differences in diverse patients e.g. ethnicities, providers and regional health care systems.

7.0 Inclusion Criteria Patients

Adult patients with:

- Diagnosis of diastolic dysfunction or HFpEF

OR

- Diagnosed with HF and a reported 'normal' EF or EF $\geq$ 50%

8.0 Exclusion Criteria Patients

- Cognitive impairment,
- Non-English speaking
- Receiving end of life care or other life-threatening condition

9.0 Healthcare Provider Sample

There are no inclusion/exclusion criteria for providers. Approximately 50 GPs and practice nurses from practices in the 3 named regions in England, HF specialist nurses, cardiologists, commissioners and others involved in care. We will recruit from urban and rural practices starting in Cambridgeshire and Peterborough then including the same additional sites as for the patient sample.

10.0 Data collection

Patients and providers will be recruited through practices and networks, and invited for interview. Interviews will be conducted via telephone or at a place of person's choosing, audio-recorded with permission and transcribed verbatim. At times the patients' carers may wish to provide information and contribute to the interview. When this happens, with the carer's written consent, we will note their comments and include these in the study.

11.0 Analysis

Framework Analysis will be used to analyse the data, as its matrix-based format will facilitate sharing of data as a team. Transcripts will be read as they are completed, first to become familiar with the data (stage 1), then to develop an initial thematic framework (stage 2) and begin indexing data (stage 3). Thematic charts (stage 4) will allow patterns to be explored and reviewed; and in stage 5 data will be mapped and interpreted. Analysis will be data driven, and initial themes and key ideas will be shared across sites. Data will be managed using NVIVO software. Ideas and themes will be discussed with investigators and patient advisory group (see PPI section), and reviewed to ensure that all ideas are included, and that findings are credible and confirmable. HCPs' and patients' interviews will initially be analysed separately, but we will also conduct a secondary analysis across the data sets for similarities and differences related to management, self-management, burden

of treatment and desired achievements (e.g. patients' goals compared to those of providers). The results of the analysis will be used to increase our understanding of unmet needs, preferences and perspectives of this patient group as well as HCPs' knowledge and recommendations for optimising management. The findings will help inform the development of a coordinated programme of management for patients with HFpEF.

12.0 Outcomes/Outputs

Greater understanding of patients' and providers' perspectives of HFpEF, comorbidities and management to be incorporated into a peer-reviewed paper, and the development and testing of optimised management for patients with HFpEF in a collaborative application.

13.0 Research Sites and Research Process

Cambridge: Cambridge University Hospitals (CUH) NHS Foundation Trust; Manchester: Manchester University NHS Foundation Trust (MFT) which covers Central Manchester University Hospitals NHS Foundation Trust (CMFT) and University Hospital of South Manchester NHS Foundation Trust (UHSM); Northern Care Alliance NHS Group which covers Salford Royal NHS Foundation Trust and The Pennine Acute Hospitals NHS Trust. Keele: University Hospitals of North Midlands, which includes Royal Stoke Hospital and County Hospital).

Practices will review patients on the HF register using the inclusion and exclusion criteria and send eligible patients a cover letter, patient information sheet, informed consent and expression of interest. Patients will be able to return the expression of interest by pre-paid post, or ring the study administrator or research nurse. In a previous qualitative study of patients with HFrEF, we found that this was a reasonable approach for recruiting patients. We will also ask the practices to talk to eligible patients attending clinic visits, and determine if they are willing to be approached about the study. Patients will be offered as much time as its needed to consider participation. Interested patients will be contacted by the SRA / RA or research nurse to explain the study, answer questions and go through the informed consent form. Consent may be taken at time of face-to-face interview or mailed via pre-paid post if the interview is by telephone. Verbal consent will also be confirmed at time of interview.

Interviews will be conducted at a place of the patient's choosing or via telephone. The same procedures and semi-structured interview guide will be used in all sites. Patient invitations will be issued from the recruiting service (using their headed paper). Interviews will be semi-structured to allow for additional questions (arising from earlier interviews), probing of answers and a relaxed conversational style. We will audio-record the interviews with permission and transcribe them verbatim. These data may be complemented by additional comments made by the patient's carer if they are present at the interview and are willing to provide written informed consent for their data to be included to add context to the study. Patient (and carer if present) identifying information will not be recorded or appear on the transcripts.

In previous research with GPs and practice nurses, we have interviewed 2-3 GPs and staff together (for example at lunch), and the strategy may be used in this study. We found that this stimulated discussion, and was time-efficient. Letters of invitation, participant information sheets, informed consent and expression of interest forms will be sent to practices and through GP and practice nurse (PN) forums. Heart failure specialist nurses and cardiologists will be invited through the CCG and specialist services providing outpatient or

community management of patients with HF, plus the Eastern Region Heart Failure Specialist Nurses Forum (Norfolk, Suffolk & Cambridgeshire). Interested GPs, practice nurses and HFSN can return the expression of interest form in pre-paid postage or can ring the study administrator or research nurse. The SRA /RA or research nurse will discuss the study, answer questions, and go through the informed consent forms. Signed informed consent forms can be scanned and emailed or posted using pre-paid postage envelopes, or received at a face-to-face interview.

14.0 COVID-19 recall study

The original study set out to determine 'the needs and wants' of patients with HFpEF and the providers who care for them. The panel of participants who agreed to take part in this initial research, which has now concluded, consented to be contacted about future research. It has become clear that the COVID-19 pandemic has necessitated a whole scale change in the way healthcare is currently and potentially will be conducted in the future. Patients with long term conditions like HFpEF are particularly affected by these changes as they are 1) vulnerable to COVID-19 and may have been asked to undertake additional protective measures (shielded); 2) require regular monitoring to ensure their condition is not deteriorating or they are experiencing adverse events; 3) often have poor baseline health which may be adversely affected by changes to society and healthcare. Healthcare professionals too will have experienced changes as they are at increased risk due to frequent exposure to COVID-19, may have had to undertake different clinical duties as resource is restructured to cope with the pandemic or have had to change the way they perform care due duties.

Many of these changes experienced by patients and providers will have long term implications and it is important we establish the perspectives of patients and providers. Therefore, we intend to recall patients and providers who participated in the original study who have documented 'consent to contact'. There is exclusion criteria, the inclusion criteria is ongoing consent to contact. These participants will be invited to take part in a sub-study that explores their views and experiences. A letter of invite will be send along with the new information about the study, a consent form and the possible options of participation (YES/NO interview or YES/NO survey). Confidentiality and data protection arrangements set out for the original study will be maintained.

15.0 Project timetable

April - May 2017	HRA process for ethical approval and research governance in the CCGs (pre-funding and study start)
May 2017	Research nurse seconded, receives training on study and qualitative interviewing. Attendance at Eastern Region HF Specialist Nurses Forum to discuss study.

June 2017 - Dec 2017	Recruitment of practices with support of PCRN, beginning with practices involved in Tip of the Iceberg Study, Cambridgeshire. Letters and information sheets mailed to eligible patients. First interviews with providers and patients conducted by SRF and research nurse together to ensure quality.
Jan 2018 – Dec 2018	Conduct of interviews, to include participants recruited from additional sites (Manchester and Keele) concurrent analysis of interview transcripts. Patients invited to join Study Advisory Group. Emerging themes and categories discussed with investigators and patient advisory group.
Jan 2019 – July 2019	Final analysis of interviews, abstract and first draft of paper completed. Findings discussed with patient and provider groups. Post study: Paper submitted to journal. Findings discussed with collaborative research group.
May 2020 – September 2020	Contact of participants who have consented to be contacted; conduct of interviews and distribution of surveys. Qualitative analysis of interviews and analysis of survey responses. Writing up of reports and paper, presentation to PAG and collaborative research group.

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