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Harnessing technology in heart failure care

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Editorial

Harnessing technology in heart failure care

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Heart failure (HF) is a major and growing public health problem worldwide and imposes a considerable burden on patients, families and healthcare systems (Savarese and Lund, 2017). In the UK, acute HF is the leading cause of hospital admissions in people aged 65 years or older (NICE, 2014), and as people live longer, HF hospitalisation rates are predicted to rise by greater than 50% over the next two decades (Ziaei and Fonarow, 2016). Already one of the five most common causes of mortality worldwide, it is predicted that by 2030 HF will account for at least 8 million deaths (Diaz-Toro et al., 2015).

Need for new approaches

The rising prevalence of HF and consequent increase in healthcare resource use and expenditure (Farré et al, 2016) are unsustainable, and new and radical alternative approaches to the organization and delivery of HF care are urgently needed. This issue has been brought into sharp relief by the COVID-19 pandemic, and, together with the recent explosion of interest in eHealth (Ski et al, 2021), has led to the increasingly widespread consideration and use of new technologies. For example, an estimated 500 million patients are utilising eHealth applications (apps) to support their own health through the self-care management of chronic diseases (Athilingam and Jenkins, 2020). Thus, HF care is ripe for such applications in helping patients in their ongoing self-care, symptom monitoring and treatment adherence, especially when patient visits to cardiology services, including HF clinics, have reduced by almost half during COVID-19 (Fersia et al, 2020), and been replaced by video and telephone consultations.

Potential of eHealth technologies

Technology innovation aims to drive down spending while maintaining high quality care (Gottlieb and Makower, 2013), and the NHS makes it clear that technology will play a central role in realizing its long-term plan (NHS England, 2019). The use of eHealth in HF (Barrett et al, 2019; Cruz-Martinez et al, 2020; Dunn Lopez et al, 2021; Granja et al, 2018; Reiners et al, 2019) is an

example of the application of a technology that can aid access and patient self-care management and education. Although HF-related outcomes vary, eHealth can improve quality of life and other patient outcomes such as symptom monitoring and engaging in and managing self-care (Athilingam and Jenkins, 2018; Barrett et al, 2019; Cruz-Martinez et al, 2020; Granja et al, 2018; Reiners et al, 2019). However, users have varying degrees of technological ability and literacy (Dunn Lopez et al, 2021; Reiners et al, 2019) and these need to be addressed to ensure optimal adoption and benefit (Granja et al, 2018; Reiners et al, 2019).

Some eHealth apps use artificial intelligence (AI) as a means of reviewing data, where tasks are performed by patients themselves, leaving health professionals to attend to more complex matters. AI and gaming provide the patient with interactive educational, decision-making support mechanisms that enable active engagement in self-care. Certain groups of people, including those who are older, with lower incomes, less well educated or living in rural or remote areas are less likely to have access to eHealth, so strategies are needed to overcome such disadvantages and avoid health inequalities (Reiners et al, 2019).

Ensuring eHealth is fit for purpose

eHealth apps for HF need to be regularly updated and re-evaluated to ensure quality of data provided is evidence-based and up to date (Barrett et al, 2019; Cruz-Martinez et al, 2020; Dunn Lopez et al, 2021; Granja et al, 2018). Rigorous cyber security is vital in eHealth (Dunn Lopez et al, 2021) to assure patients and other users that confidentiality will not be breached. The Department of Health and Social Care (2021) has issued guidance on digital and data-driven health technologies including, for example, how to operate ethically, clinical safety, data protection, data transparency, cybersecurity and regulation. In addition, NICE (National Institute for Health and Care Excellence, 2019) has produced a framework that describes standards for the evidence that should be available for digital health technologies to demonstrate their value in the UK health and care system.

The use of eHealth in HF has the potential to transform current ways of working, with the overall aim of enhancing clinical care and ultimately patient outcomes and experience. However, to be effective it must be user friendly and personalized and have the capability to interact with data monitoring using high level AI, making effective and efficient use of healthcare professionals' time and effort with complex HF management issues. Further research is needed regarding issues such as the usability and cost-effectiveness of eHealth in HF care.

In view of the burgeoning growth of HF, the opportunities and benefits that health technologies afford should be embraced by the HF community: patients, families and healthcare professionals. Whilst not perfect, technology is being continually refined, especially with the rapid advances in AI and virtual reality, and though it is no substitute for the nuanced care provided by healthcare professionals, it is an important adjunct. At the very least, it deserves careful consideration in efforts to combat HF.

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