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Integrating Compression Therapy in the Management of Coexisting Heart Failure and Lymphoedema: A Holistic Approach to Patient-Centred Care

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Abstract

Background:

Heart failure (HF) and lymphoedema often co-exist, significantly affecting quality of life and requiring complex management. Heart Failure, characterised by reduced cardiac function, affects around 1 million people in the UK. Lymphoedema, involving lymphatic failure, affects 4 to 29 per 1000 individuals, particularly older adults. Traditionally heart failure management focuses on medication, while lymphoedema relies on compression therapy (CT).

Aim:

The article examines the integration of compression therapy to treat lymphoedema with coexisting HF.

Discussion:

Evidence suggests that with careful management and multidisciplinary collaboration, compression therapy can be safely used in stable HF patients to manage lymphoedema, improving overall treatment outcomes and patient wellbeing. This approach requires adherence to guidelines and a holistic, patient-centred care model.

Conclusion:

Debates about CT for lymphoedema in the presence of HF highlight the need for holistic, patient-centred care. Practitioners must consider the broader context of both conditions and collaborate with colleagues and patients to make informed treatment decisions.

Key words

compression therapy, fluid management, heart failure, lymphoedema, New York Heart Association

Key points

Heart Failure (HF) – HF is a significant health concern affecting millions globally, with a substantial proportion also experiencing lymphoedema (LO).

Concerns - HF, a chronic condition where the heart is unable to pump blood effectively, often coexists with LO, complicating treatment due to concerns about fluid management and potential delays in care.

Exacerbation - It is crucial to address HF within the context of LO because the presence of both conditions can exacerbate each other, necessitating careful consideration of fluid dynamics and treatment timing.

Evidence Base - Current research and reviews suggest that compression therapy can be safe for HF patients, though it requires cautious application. In practice, understanding the New York Heart Association stages 1–4 is vital, as it informs best practices and guidelines, such as those from the British Lymphology Society, to ensure safe and effective management of patients with both HF and LO.

CPD reflective questions

1. Patient Assessment and Prioritisation—Reflect on your most recent patient with both lymphoedema and heart failure (HF). How did you prioritise their care needs related to fluid management? What factors did you consider in balancing the risks and benefits of compression therapy (CT) in their treatment plan?

2. Interdisciplinary Collaboration—Think about a time when you worked with other healthcare professionals (eg cardiologists, physiotherapists, lymphoedema specialists) to manage a patient's lymphoedema and HF. How did this collaboration influence the patient's outcomes? What strategies did you use to ensure effective communication and coordination of care?

3. Patient Education and Compliance—Consider a patient with lymphoedema and heart failure who was struggling with adherence to their CT regimen. How did you approach educating them about the importance of CT and its impact on both their lymphoedema and HF? What methods or tools did you find most effective in improving their compliance and understanding?

Background

Heart failure (HF) is a term that may be interchangeable with cardiac failure or congestive heart failure. The condition results in cardiac function reduction and its output capability (Wounds UK, 2023). However, some people feel that the term heart failure is 'misleading' as the heart still functions, but it does so in a less efficient way (Wounds UK, 2023). When we consider the impact of heart failure. It is estimated that 1 million people in the UK has some form of heart failure, with up to 200 000 new diagnoses each year (Conrad et al, 2018). The estimates do not indicate the impact it has upon the persons, their lives and those around them.

It has been noted that the impact of HF is not only physical, with shortness of breath in the moderate and later stages, but also the presence of swollen limbs (peripheral oedema) that can affect mobility and fatigue (McDonagh et al, 2021; National Institute for Health and Care Excellence (NICE) 2022a, 2022b). The impact of these signs and symptoms add to the reduced quality of life that people experience due to the inability to engage in activities they previously enjoyed, and it also changes their perceptions of themselves, and the world around them (Cooper-Stanton, 2022).

Heart failure may not always be in isolation and may exist with other conditions (comorbidities) such as lymphoedema. A retrospective study using the LIMBPRINT core tool collected data on individuals diagnosed with lymphoedema and identified that heart failure is one of the three main co-existing conditions present in these patients (Keeley et al., 2019)

. Equally, we also need to consider that people with heart failure may develop lymphoedema and vice versa (Keeley et al, 2019; Cooper-Stanton, 2022; Wounds UK, 2023). Both conditions can develop and carry increased risk due to ageing and lifestyle factors that contribute to cardiovascular or other diseases. These risks can also be viewed within the broader context of health inequalities, such as age, and social determinants, like income (NICE 2022a, 2022b, Moffatt et al, 2017). Common causes of heart failure, include heart attack, also known as myocardial infarction, cardiomyopathy, an inherited or acquired disease of the heart muscles, and high blood pressure known as hypertension (Wound UK, 2023).

What is heart failure?

As noted above, HF can be defined as reduced cardiac function leading to a reduced cardiac output (Wounds UK 2023). The reduced ability of the heart to manage fluid (blood) can lead to various diagnoses via different tests, such as blood tests or chest X-rays (NICE 2022a, 2022b). An echocardiography ultrasound can indicate the effectiveness of the heart, in terms of ejection fraction (Wounds UK, 2023), with a 50-70% indicating an expected heart output for someone without heart failure. However, when it comes to different variations in heart failure, it is noted that 50-70% can be present for those with preserved ejection fraction, thus adding a level of complexity (NICE 2022a, 2022b; McDonagh et. al. 2021). Diagnosis of heart failure should be undertaken by healthcare professionals with the required knowledge and access to tests, such as GPs or HF nurse specialist, with the most common diagnosis being left-side ventricular failure (Wounds UK, 2023). Guidance regarding the potential tests or investigations that may be undertaken is contained with different guidance, such as the NICE or best practice statements (Wounds UK, 2023; NICE 2022a, 2022b). Despite the need for clinical expertise in HF diagnosis, everyone who delivers care can support the identification of the signs and symptoms of heart failure, the deterioration of the condition and when onward referral is needed (Wounds UK, 2023).

Table 1. Ejection Fraction and Preserved Ejection Fraction

Term	Description
Ejection Fraction	Ejection fraction (EF) is a measurement of the percentage of blood that the heart's left ventricle pumps out with each contraction. It's a key indicator of heart function, with a normal EF ranging from 50% to 70%. A lower EF may suggest heart failure or other cardiac conditions.
Preserved Ejection Fraction	Preserved ejection fraction (pEF) refers to a condition where the heart's left ventricle pumps out a normal percentage

	of blood (usually 50% or higher) but may still be experiencing dysfunction. This condition is often associated with heart failure with preserved ejection fraction (HFpEF), where the heart's ability to fill with blood is impaired despite maintaining a normal ejection fraction.
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Why do we need to consider Heart Failure with Lymphoedema?

Whilst lymphoedema does not lead to heart failure, HF is one of the main comorbidities that coexist with lymphoedema (Keeley et al, 2019). Lymphoedema is the reduced capacity of the lymphatics to move fluid, due to what is considered a failure of the lymphatics in fluid movement and the resulting immune surveillance in the location affected, such as lower legs (Mortimer et al, 2014; Rankin, 2016; Rossitto et al, 2019). Failure of the lymphatics may refer to the whole lymphatic system (systemic) or it may indicate that parts of the system may not be functioning (part of the lower leg or arm while the upper part of the limb functioning properly (Rankin, 2016; Rossitto et al, 2019). Lymphoedema is estimated to affect between 4 to 29 people per 1000 of the general population, with the larger figure referring to those aged over 85 years (Moffatt et al, 2017). The causes of lymphoedema range from internal factors (primary lymphoedema), such as lymphatic development in terms of genetic influences (Milroy's disease), to external factors (secondary) such as cancer and its treatment or trauma (Cooper and Bagnall, 2016). A higher percentage of caseloads relates to external factors with non-cancer-related causes such as obesity, trauma and venous insufficiency (Rankin, 2016; Cooper and Bagnall, 2016).

The suitability of compression therapy (CT) has been an area of contention between the management of HF and lymphoedema. Debates in this area have led to the production of a 'Best Practice Statement' on the use of CT with heart failure (Wounds UK, 2023) and the creation of an educational document by the British Lymphology Society (BLS), which will be launched in 2024. Compression therapy in lymphoedema, such as hosiery

or bandages, is the main form of management due to its ability to move fluid by supporting and stimulating the lymphatic system and acting as a counter force to the accumulation of excess fluid (ILF, 2012). With HF the focus has been on the optimisation of medication (such as diuretics) and the management of existing conditions such as hypertension (NICE 2022a, 2022b). The use of medications, such as diuretics, in lymphoedema is not advocated due to its limited benefits (Pal et al, 2022). Concerns have been raised about the combination of medication and CT in those with HF and lymphoedema, and whether it can be beneficial or would it lead to exacerbations or complications due to the movement of fluid (Wounds UK, 2023). Rather than believing the options are binary, meaning one or the other, we consider that both are equally important.

What do we know already about HF and CT?

When we consider the possibility that a combination of medication and compression therapy is important in those diagnosed with both heart failure and lymphoedema, we need to consider the existing evidence. While the possibility of using compression therapy having a physiological effect on the person (raised fluid levels in the heart) has been established, this effect is temporary (Cooper-Stanton, 2022; Wounds UK, 2023). Despite having studies indicating its short-term nature, we also need to consider that the quality of these studies was varied, and why this has led to the creation of best practice statements and educational guidance material (Cooper-Stanton, 2022; Wounds UK 2023). What can be taken as central aspects from the existing evidence-based research and guidance, is that some people may benefit from compression therapy despite having heart failure. The benefit is in terms of managing their lymphoedema, optimising their heart failure management by adherence to medication and ensuring that the condition remains stable (NICE 2022a, 2022b, Wounds UK, 2023). The term 'stable' focuses on the notion that their existing heart function (ejection fraction) remains within the normal limits for that person; 40–70% depending on their heart diagnosis (Wounds UK, 2023). 'Unstable' refers to decompensation when the heart is no longer able to manage, which may lead to weight gain, increased fatigue and intensified shortness of breath (NICE 2022a, 2022b; McDonagh et al, 2021). If a person's HF is unstable, it requires immediate onward referral to a hospital or a

suitable service to offer additional support, such as intravenous medication and monitoring (NICE 2022a, 2022b).

Implications on practice?

In clinical practice, there is the need to challenge previous preconceptions that someone with HF, with or without lymphoedema, should not be offered compression therapy (Cooper-Stanton, 2022; Wounds UK, 2023). Each patient, and their situation, should be considered as a whole. In terms of their medical history, their wishes and even the involvement of the wider multidisciplinary team (MDT) . This can be broken down into the following considerations outlined below, which need to be factored in with the existing NICE guidance in heart failure (2022a, 2022b). In the absence of specific guidance in the use of compression therapy in heart failure, best practice statements or consensus should be considered (Wounds UK, 2023). The available materials will also be complemented by the education document being developed by the BLS.

New York Heart Association (NYHA) Functional Classification —Consider the signs and symptoms that someone with heart failure may experience; from 1–4 or no signs to severe (See Table 2; McDonagh et al, 2021; American Heart Association, 2023). In the existing evidence base, those with NYHA 1 to 2 with stable HF can be considered for compression therapy (Rabe et al, 2020; Urbanek et al, 2020), while those from 3–4 may require the involvement of the MDT (Cooper-Stanton, 2022; Wounds UK, 2023).

Table 2. New York Heart Associated (NYHA) Functional Classification (2023)

Classification	Patient Symptoms
1	No limitation of physical activity. Ordinary physical activity does not cause undue fatigue, palpitation, or shortness of breath.
2	Slight limitation of physical activity. Comfortable at rest. Ordinary physical activity results in fatigue, palpitation, shortness of breath or chest pain.

3	Marked limitation of physical activity. Comfortable at rest. Less than ordinary activity causes fatigue, palpitation, shortness of breath or chest pain.
4	Symptoms of heart failure at rest. Any physical activity causes further discomfort.

Optimisation—People with HF need their management approach optimised to avoid deterioration of their condition, which may exacerbate their existing lymphoedema (McDonagh et al, 2021; Wounds UK, 2023). The ‘true prevalence’ of non-adherence to HF medication has yet to be established, but the range is between 5-60% (Simpson et al, 2021). By working within the MDT in a collaborative exploratory approach, we can begin to optimise adherence to medication and the care that we can deliver.

Compression Therapy—We challenge the prevailing assumption that CT should not be used in patients with lymphoedema who have heart failure (Itkin et al, 2021; Wounds UK, 2023). Excluding this treatment from care plans diminishes the potential to optimise care for individuals with peripheral oedema, particularly when integrated with other treatments, such as medication (Cooper-Stanton, 2022).

These are only a few considerations in the delivery of care; it is not an exhaustive list and must be considered against the existing guidance to aid the decision-making process. It should consider the whole situation, or holistic elements, to support the delivery of person-centred care, instead of individual conditions.

Conclusion

The management of patients with concurrent heart failure and lymphoedema necessitates a holistic and individualised approach. Despite historical concerns, evidence indicates that compression therapy can be safely employed in stable heart failure patients to manage lymphoedema effectively. This dual target the symptoms of both conditions, potentially increasing patient adherence to treatment. Healthcare providers must leverage existing guidelines and collaborate within multidisciplinary teams to optimise care. The development of educational resources and best practice statements further supports the safe integration of compression therapy in these

complex cases, ensuring that patient-centred care remains at the forefront of treatment strategies.

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