

Palliative care for older adults with cardiovascular disease

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Abstract: Heart disease is the number one cause of death in the United States. Advanced cardiac conditions, such as heart failure, are characterized by severe symptoms, recurrent hospitalizations, limited/uncertain prognosis, decreased quality of life, and high levels of caregiver burden. The burden of heart failure is highest in older adults, for whom cardiovascular symptoms are layered on existing age-related problems such as geriatric syndromes, polypharmacy, depression, frailty, inadequate social support, decreased representation in clinical trials, and aging caregivers. Deliberate integration of outpatient and interdisciplinary geriatrics, palliative care, and cardiovascular care are essential for this special population. Life-prolonging and quality of life-focused approaches to managing cardiovascular disease are not mutually exclusive; many cardiology medications and treatments prolong life while also improving symptom burden. Symptom management, a cornerstone of palliative care, is therefore not only complementary to life-prolonging cardiology treatments, but also *integral* to optimized daily cardiovascular care. In this review, we aim to summarize relevant literature and provide practical tools that can be used by primary care clinicians, geriatricians, cardiologists and palliative care clinicians to optimize holistic outpatient care for adults who are aging with heart disease. While palliative care is appropriate for any age or stage of illness, we will focus on older adults with heart disease, and the nuances of managing their symptoms, goals of care, and quality of life.

Keywords: Older adults; geriatrics; cardiovascular disease; heart failure; palliative care

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Introduction

Heart disease is the number one cause of death in the United States (1). The burden of advanced cardiac conditions, like heart failure, is highest in older adults; heart failure is the leading cause of hospital admissions for those 65 and older, and 80% of all heart failure occurs in those 65 years or older (2). Many cardiovascular diseases are characterized by severe symptoms (including chest pain, palpitations, dyspnea, fatigue, and anorexia), recurrent hospitalizations, limited/uncertain prognosis, decreased

quality of life, and high levels of caregiver burden (3,4). For older adults, these symptoms are layered on existing age-related problems, including geriatric syndromes, polypharmacy, depression, frailty, inadequate social support, decreased representation in clinical trials, and aging caregivers (5,6).

Older adults with heart disease therefore have nuanced and unique care considerations at the intersections of geriatrics and palliative care. Despite 2022 American Heart Association/American College of Cardiology/Heart Failure Society of America (AHA/ACC/HFSA) guidelines

providing a class 1 recommendation for the provision of palliative care to patients with heart failure, palliative care integration into heart failure and cardiology care remains low, and cardiologists often do not initiate end-of-life care discussions with their patients (4,7-9). Palliative care is consulted less than half the time in those who die of cardiopulmonary failure, and only one-third of patients with heart failure receive hospice care at the time of their death (10). This is due to several barriers, including uncertain cardiovascular prognosis, misinformation about palliative care, and suboptimal implementation and delivery of palliative care within cardiology (11-13).

Deliberate integration of outpatient and interdisciplinary geriatrics, palliative care, and cardiovascular care are essential for this special population for the following key reasons:

- (I) In an aging population that is bearing an increasingly complex burden of cardiovascular disease, non-palliative and non-geriatric clinicians will need to take a more active role in optimizing aging and end-of-life care, especially as it pertains to morbidity and mortality related to their specialty (14).
- (II) In particular for cardiovascular disease, life-prolonging and quality of life-focused care are not mutually exclusive, as many medications and treatments prolong life while also improving symptoms (15). Symptom management, a cornerstone of palliative care, is therefore not only complementary to life-prolonging cardiology treatments, but also integral to optimized daily cardiovascular care.
- (III) If provided with optimal tools and resources, non-palliative and non-geriatric clinicians (such as cardiologists, nurses, and pharmacists) may be optimally positioned to address prognosis, illness trajectory, and the risks/benefits of cardiovascular therapies directly with their patients who have complex heart disease (14).
- (IV) Integrating the responsibility of palliative care and geriatrics into cardiology encourages holistic care and reinforces the idea that symptom management, goals of care (GOC), and end-of-life care are integral aspects of daily cardiovascular care (14).

In this review, we aim to summarize relevant literature and provide practical tools that can be used by primary care clinicians, geriatricians, cardiologists, and palliative care specialists to optimize holistic outpatient care for older adults with heart disease. While it is important to emphasize

that palliative care is appropriate for any age or stage of illness (16), in this review we will focus on older adults with heart disease, and the nuances of managing their symptoms, GOC, and quality of life.

Defining palliative care

The scope of palliative care as a specialty is broad and includes an interdisciplinary approach to improve quality of life and alleviate suffering for those with serious illnesses, independent of prognosis (4). This includes advanced care planning (ACP), GOC discussions, caregiver support, and symptom management (14). One method of palliative care delivery is “primary palliative care”, provided by primary care physicians or non-palliative care specialists. “Secondary palliative care” refers to the care provided by palliative care specialists, often for refractory symptoms, complex psychosocial issues, or conflict resolution regarding GOC (14).

Importantly, while end-of-life care and planning are important aspects of palliative care, the scope of palliative care extends beyond death and dying to include symptomatic treatment throughout the course of disease. Specialties such as oncology have a long history of integrating palliative care into daily practice, and studies from these models have shown improved quality of life, better symptom control, and perhaps even longer life expectancy in certain populations (17-19). Data show that patients with severe heart disease and their caregivers also have higher satisfaction with the utilization of palliative care (20); however, the use of palliative care (21), end-of-life care options such as hospice (22), and symptom management strategies including opioids (23) lag behind in cardiovascular disease compared to other chronic illnesses (22).

Special considerations for heart failure

Cardiovascular symptoms stem from medical comorbidities, polypharmacy, individual medication side effects, or primary cardiovascular etiologies (myocardial dysfunction, valve abnormalities, arrhythmias). Heart failure is the common end-result of many of these cardiac pathologies and disproportionately burdens older adults; 80% of all heart failure occurs in those 65 years or older, and heart failure is the leading cause of hospital admissions for those 65 and older (24). Patients with heart failure experience debilitating physical and emotional symptoms, loss of independence, disruptions to social roles, and lower quality of life (25,26).

Table 1 Barriers to palliative care referral

Categories	Barriers
Disease-related challenges	(I) Uncertainty in prognosis (II) Sudden changes in clinical status (III) Significant symptoms that require recurrent hospitalizations
Knowledge limitations	(I) Incomplete knowledge about palliative care tools, treatments, and prognostication (II) Associating palliative care with “giving up” (III) Incomplete knowledge of the breadth of life-prolonging treatments and their side effects (IV) Overestimating the efficacy of life-prolonging treatments
Systemic barriers	(I) Palliative care services may not be available for those with cardiac disease (II) Geographic or transportation limitations to specialty care (III) Lack of integrated specialty-palliative care services (IV) Financial burden (V) Late referral to palliative care or hospice services

These symptoms include dyspnea, pain, fatigue, anorexia, nausea, anxiety, and depression (3); they are often distressing for patients and caregivers, yet are under-recognized and undertreated (25,26). Symptoms such as dyspnea are also a trigger for hospitalizations, and often contribute to patients dying in the hospital rather than at home (27). Symptom management is therefore key to managing heart failure, whether this is as an adjunct to life prolonging treatment or as the sole focus of treatment.

The morbidity and mortality of heart failure is also striking. About 40% of patients die within a year of their first hospitalization for heart failure, and the 1-year mortality rate of stage D heart failure is 29% (28,29). While improvements in medical therapy have decreased the incidence of sudden cardiac death in those with heart failure, this has resulted in a growing population of patients with heart failure dying from pump failure (30). This has increased morbidity and prolonged the processes of death and dying in those with advanced cardiovascular disease (31).

The 2022 AHA/ACC/HFSA guidelines even provide a class 1 recommendation for palliative care (including communication, prognostic awareness, GOC discussions, advanced care directions, symptom management, shared decision making, and caregiver support) to improve quality of life and decrease suffering for those with heart failure (9). The guidelines also acknowledge the importance of patients dying in their preferred locations (hospital *vs.* home *vs.*

hospice facility). However, palliative care is consulted less than half the time in those who died of cardiopulmonary failure, and only one-third of patients with heart failure receive hospice at time of death (10).

Compared to patients with cancer, more patients with heart failure die during hospitalization (23). However, patients with heart failure are less likely to be supported by hospice and opioids (23), and are enrolled in hospice at lower rates than those with cancer (32). Patients with heart failure are also often enrolled in hospice too late; the median time from enrollment in hospice to death for those with heart failure is 12 to 20 days with 20–22% of patients dying within 3 days of enrollment (23,33,34). Given acute decompensations when in hospice, those with heart failure are also more likely to return to acute care settings even after hospice enrollment (33).

Barriers to providing palliative care for older adults with cardiovascular disease

Palliative care for older adults with cardiovascular disease may be underutilized because (*Table 1*):

Prognostication for older adults with chronic cardiovascular disease is challenging

Severe cardiovascular diseases such as heart failure have acute

decompensations as well as limited and uncertain prognoses (despite the overall high mortality and morbidity of such diseases) (11,24). Patients and caregivers often overestimate their own life expectancy with cardiovascular disease (35), and this may make the dying process either painfully drawn out or unexpectedly sudden (36). Given this uncertainty, some clinicians may wait until a “trigger event” or sudden change in clinical status to initiate palliative approaches (4). Thus, GOC for patients with heart disease often occur in the hospital, rather than times of clinical stability, and without opportunities for careful contemplation. This further perpetuates the incorrect assumption that palliative care is only appropriate at the end of life and requires foregoing life-prolonging therapies (4,37).

There are misconceptions, or incomplete knowledge, about palliative care

There are data that older adults and their health care teams have incomplete knowledge about palliative care, and this leads to fewer requests for, and fulfillment of, primary and secondary palliative care (12). This may stem from systemic flaws in perpetuating misconceptions that life-prolonging cardiovascular care and palliative care are mutually exclusive, and that palliative care is reserved for those who are near death (38). Some patients may also feel that a referral to palliative care represents their doctor losing hope, and this in turn may further dissuade clinicians from utilizing palliative care services (39). Other patients may believe their doctors do not want to discuss death and dying (40). Patients and clinicians may also have incomplete understanding of treatment efficacy, such as overestimating the efficacy of implantable cardioverter-defibrillators (ICDs) or cardiopulmonary resuscitation (3).

There is a lack of automatic integration of palliative care services

While some chronic disease specialties such as oncology often provide integrated palliative care services, this is not yet standard of care in cardiology (41). This may be due to the availability of ample advanced therapies and medications for heart disease, or the belief that the secondary palliating effects of disease modifying treatment (such as guideline directed medical therapy for heart failure) are sufficient for symptom management (41). There is also concern that palliative care specialists may not be aware of the wide

range of treatment options (or their side effects) for life-prolonging treatment and may prematurely transition patients to comfort focused care (41).

The availability and accessibility of outpatient palliative care and geriatric services is limited

Optimal palliative care for older adults is often limited by the palliative care and geriatrics resources available. In some medical centers, palliative care services may only be available to those with certain chronic diseases. Even if services are available for heart disease, patients in rural areas may find it especially challenging to travel to receive this care, especially when their goals include maximizing time at home (42). Older adults may have particular difficulty obtaining transportation to specialty appointments, due to barriers in accessing transportation, social support, or financial burden. Patients and clinicians may also fear that common end-of-life resources such as home hospice may be unable to provide the care that older adults dying of heart disease require, such as the ability to manage unpredictable acute decompensations, intravenous diuretics, or palliative inotropes.

Older adults with chronic heart disease have unique needs

Not only do older adults with chronic heart disease face unique barriers in accessing palliative care resources, but they also have special palliative care needs. Compared to younger adults with chronic heart disease, older adults experience geriatric syndromes (*Table 2*), including cognitive impairment/psychiatric diseases, falls, urinary incontinence, sensory impairment, and frailty (frailty and depression are discussed in more detail below) (6). These geriatric syndromes are associated with worse cardiovascular outcomes. Older adults with heart failure are also more likely to struggle with social isolation and loneliness, or have caregivers who are older adults themselves (6,43-45).

Many clinical trials are not generalizable to older adults (24). Cardiology clinical trials often have limited representation of adults ≥ 80 years old, the sickest older adults, those with frailty, or those with decreased functional status (15). The impact and efficacy of disease-prolonging treatments demonstrated in these trials may not be applicable to older adults, and this may negatively impact disease prognostication and trajectory for older adults with

Table 2 Geriatric syndromes and their intersections with cardiovascular care

Syndrome	Intersections with cardiovascular care
Cognitive impairment	(I) Decreased ability to attend in-person medical appointments, understand medical recommendations, manage medications, or make decisions about advanced care planning
Falls	(I) Higher risk of bleeding with anticoagulation (II) Higher risk of orthostatic symptoms with blood pressure lowering agents, diuretics, and other heart failure medications
Urinary incontinence	(I) Exacerbated by diuretics and SGLT2i (II) Contributes to nocturia and falls (III) Worsens sleep quality and insomnia
Sensory impairment	(I) Decreased ability to attend in-person medical appointments, understand medical recommendations, manage medications, or make decisions about advanced care planning
Frailty	(I) Lack of representation in some clinical trials, which may lead to adverse drug events and inappropriate medication doses (II) Decreased mobility, and limited ability to attend in-person medical appointments

SGLT2i, sodium-glucose cotransporter 2 inhibitor.

advanced heart disease (15).

The intersection of frailty and cardiovascular disease

Frailty is a syndrome, defined as the spectrum of increased vulnerability to stressors due to decreased physiologic reserves in older adults (46). There are multiple definitions and tools to quantify frailty, encompassing a range of domains from physical frailty and cognitive frailty to psychosocial frailty and nutritional frailty (46). Frailty is associated with higher rates of developing cardiovascular disease (47,48); possible driving mechanisms for this include inflammation, insulin resistance, decreased muscle mass, inactivity, exhaustion, weakness, and multi-organ dysfunction (48).

Frailty has significant implications on cardiovascular disease trajectory and quality of life. Those with frailty and heart failure have higher rates of mortality at 1 year (17% *vs.* 5%), higher hospitalizations for heart failure (21% *vs.* 13%), and worse quality of life (49,50). Frail patients with chronic heart failure also have a lower probability of surviving longer than 10 years (6% *vs.* 31%) (51). It is known that frail patients with angina, despite having similar anginal severity as non-frail patients, have lower physical functioning and quality of life (52). Some studies also suggest that frailty may have a larger impact on quality of life than other medical comorbidities (52).

Despite these clinical implications, frailty assessments and optimization are not yet routine in cardiovascular practice (48). In addition, there is data that patients with frailty and cardiovascular disease are often managed with “less aggressive” strategies than patients without frailty (39). Frail patients are less likely to receive guideline directed medical therapy for heart failure, admission to a coronary care unit, referral for cardiac catheterization, or coronary artery bypass graft surgery (49,53,54). It is unclear if these different strategies are appropriate or inappropriate for those with frailty, as frailty should ideally be used holistically to deliver optimal care, rather than as a reason to withhold care as a pattern (48). Promisingly, there is already emerging data suggesting that certain cardiovascular medications, such as dapagliflozin, may actually be more effective in those with frailty (55).

Polypharmacy

One reason why clinicians may avoid prescribing certain medications to older adults or frail adults is concern for worsening polypharmacy. Polypharmacy is common among older adults with cardiac disease, especially among those with heart failure (15). Like frailty, there are multiple definitions of polypharmacy (none of which were developed specifically for older adults with cardiovascular disease). One largely accepted definition is taking five or more medications (56).

Risks of polypharmacy include adverse drug events, hospitalizations, financial burden, prescribing cascades, and decreased quality of life (15). However, there is a lack of data on the safety of deprescribing cardiovascular medications at older ages, and deprescription in otherwise stable patients may lead to clinical destabilization (57). There is therefore innate tension between the well-studied benefits of optimized cardiovascular therapies for older adults and the risks of polypharmacy (15).

While many cardiac medications improve symptoms and prolong life in a meaningful way, they still have side effects that must be addressed holistically in the context of a patient's age and comorbidities. Palliative care interventions to address side effects of these medications such as dry mouth, constipation, nocturia, fatigue, and orthostasis, are essential. Palliative care integration may also help mitigate the harmful effects of polypharmacy by helping to weigh the risks and benefits of each medication based on each patient's clinical trajectory and GOC.

Mood symptoms and disorders

Depressive symptoms are some of the strongest predictors of short-term decline in those with heart failure (58), and depression is independently associated with increased 1-year mortality and hospitalization among those with heart failure (59). Comorbid depression also increases the annualized cost of heart failure care by 26–29% (60). Higher levels of depression independently predict subsequent arrhythmias in patients with ICDs (61). It is also striking that 20–30% of patients with heart failure have clinically significant depression (62), and treating this depression might significantly improve quality of life (26).

Multiple studies have also shown a high prevalence of depression and anxiety in those with ICDs and ventricular assist devices (VADs), further discussed below (63,64). PTSD is also higher in those with ICDs, and worsens after ICD shocks (63).

Cardiac device management

Managing life-prolonging devices in the elderly is a unique aspect of geriatric cardiology and end-of-life care. Specific devices/procedures are discussed below.

Permanent pacemakers (PPMs) and ICDs

The Heart Rhythm Society (HRS) provides guidance to

discuss goals prior to ICD implantation, and to re-evaluate benefit and burden of devices, especially if there is a change in resuscitation limits or prognosis (65). However, 20% of patients with ICDs receive shocks within the last few weeks of their life and 8% receive a shock within minutes of death (66). Despite explicit guidance by the HRS, many patients are not aware that device deactivation is an option (67), and up to 15% of clinicians may not know deactivation is legal if requested by the patient (68). There may also be hesitation to deactivate PPMs, given a PPM's role in prolonging life and relieving symptoms of dyspnea, chest pain, and syncope (68).

Mechanical circulatory support (MCS) and VADs

The 2022 AHA/ACC/HFSA Guidelines state that for those undergoing consideration of life-extending therapies for heart failure, the option of discontinuation should be anticipated and discussed at initiation (with reassessment as clinical status and GOC change dynamically) (9). While devices such as VADs can relieve debilitating heart failure symptoms, they require extensive caregiver support and can also cause physical pain, depression and anxiety (69). Despite guideline recommendations, in a survey of 300 clinicians (cardiologists, cardiothoracic surgeons, and intensivists), 17% refused a request to turn off a VAD in a patient approaching death (70). Only 26% felt comfortable personally turning off a VAD in a patient approaching death, and 25–30% viewed turning off a VAD as different from withholding or withdrawing mechanical ventilation or vasopressor agents (70).

Systemic issues around device deactivation at the end of life also include a lack of hospice protocols to manage such devices at the end of life, or the need for specialty teams to be present to deactivate the device when appropriate. While device management decisions at the end of life should be pre-emptively discussed and included in advanced care directives, only 14% patients with heart failure in 2013 had an advance directive (71). The decision to deactivate devices may therefore be made by clinicians in the hospital who are not as familiar with a patient's long-term trajectory or GOC.

In accordance with the HRS guidelines discussed above, it is essential to improve early integration of palliative care for patients who may undergo device placement independent of prognosis. Such integration can also improve symptom management of devices independent of end-of-life planning, by helping support lifestyle changes required after device placement. This includes alleviating caregiver burden for

patients with VADs, improving quality of life for those with durable MCS, and managing mood symptoms such as depression, anxiety, and posttraumatic stress disorder (PTSD) in those with ICDs and VADs (63,72).

Appropriate use of devices or procedures in those who are older or dying

While it is appropriate to deactivate certain existing devices in older adults who are dying, and unnecessary procedures at the end of life should be avoided if they will cause suffering, some procedures may in fact be appropriate for those who are older or dying. Of note, age alone should not be taken out of the context of a patient's functional status and GOC when deciding whether to offer a life-prolonging or symptom reducing procedure. Providing the "right patient at the right time" (73) with an appropriate procedure or device is therefore nuanced and should be based on a holistic evaluation of age, functionality, and overall prognosis.

One example of a procedure that may have a palliative role in those who are dying are transcatheter aortic valve replacements (TAVRs) for those with symptomatic aortic stenosis (73). Similar to heart failure, severe aortic stenosis not only causes mortality, but also significant changes in quality of life. While comorbidities and frailty now often play a role in determining who is eligible for a TAVR, the history of TAVR is linked to frail older adults, as it was initially developed to relieve symptoms for patients whose poor functional status made them poor surgical candidates. Currently, up to 63% of patients referred for TAVR are frail (48). While inter-procedural mortality is thought to be low for frail patients undergoing TAVR (48), it is unclear if traditional frailty assessment tools are generalizable to this context (48). Regardless of whether or not a patient is a candidate for TAVR (either for life-prolonging or palliative intent), palliative care is essential to helping alleviate symptoms of aortic stenosis such as shortness of breath and chest pain at the end of life.

Caregiver burden

Caregiver burden is unique for older adults with cardiac disease (74). Caregivers for older adults may include parents, spouses, partners, or friends of the same age or older; additionally, some patients may require legal guardianship.

These caregivers may be unable to provide involved home care (including home hospice) the way younger caregivers might, and they may suffer from chronic illnesses and geriatric syndromes themselves. Spouses and caregivers of patients report significant distress and depression (24), and often report that psychological and non-cardiac symptoms from their loved one cause more significant distress than cardiac symptoms (3).

Caregivers of those with heart failure provide 6 to 70 hours of care per week for an average of 4 years (75-79). A quarter of spouses have clinically significant depression, and caregiver distress is proportionate to heart failure severity (80,81). Caregivers of those with heart disease also often feel unprepared to manage exacerbations and emergencies (82,83). Devices such as VADs are extremely burdensome to care for (72) and may be similar to the burden of caregivers caring for those with home mechanical ventilation (84).

Significant caregiver burden is also experienced in the setting of end-of-life decision making. This burden is particularly high when there are few preceding conversations about end-of-life care (85). Unfortunately, very little support is actually provided to caregivers prior to and following patient death (86).

Racial disparities in palliative care

Fewer Black and Hispanic patients with cardiovascular disease die in hospice than White patients (21). Among patients with heart failure, those who are White have higher utilization of palliative care and hospice services (87). Families of Black or African American descent report less satisfaction with care around death (88), are less likely to have formal written ACP documents (88), and are more likely to experience financial hardship due to savings depletion or difficulty paying for end-of-life care (88). These disparities persist even after palliative care consultation (89). Unfortunately, racial disparities in palliative care for older adults are magnified by age and race-related disparities present in accessing and affording cardiovascular medications (90). Eliminating such disparities is essential, and will require targeted approaches to develop culturally appropriate models of palliative care, reduce language barriers when providing palliative care, improve community-based partnerships, and increase access to secondary palliative care in underserved

communities (91).

What we can do to improve palliative care for older adults with heart disease

Systemic changes

There have been several models studied on how to operationalize palliative care for those with heart disease, but none are specific to older adults. The majority of work has focused on developing specialty aligned palliative care teams and expanding non-oncology and interdisciplinary palliative care access (92). The Palliative Care in Heart Failure (PAL-HF) randomized control trial (35) showed that those with heart failure who were provided palliative care interventions had clinically significant improvements in quality of life and anxiety [including higher Kansas City Cardiomyopathy Questionnaire (KCCQ) and Functional Assessment of Chronic Illness Therapy-Palliative Care scale (FACIT-Pal) scores]. The Social Worker-Aided Palliative Care Intervention in High-risk Patients With Heart Failure (SWAP-HF) trial (93) focused on social worker-led interventions, and showed improved advanced care plan documentation.

The success of such programs may be limited by variation in institutional practice, difficulty implementing these models in underserved areas, and specialists who may not perceive added value of palliative care (94). Future models may benefit from developing buy-in from different clinician team members, increasing efforts to proactively assess local institution needs, and tailoring palliative care services to meet patient and provider needs (94).

If hospitals do not have the resources for integrated palliative care-cardiology teams, there may also be a role for developing automatic referrals to palliative care based on cardiac criteria, or validated symptom questionnaires (this may also decrease racial biases in referrals). There may also be a role for cardiac rehabilitation, telehealth and home hospital models to supplement care, especially for those in rural areas (95). However, even these models have disparities in utilization based on gender, insurance, access to technology, and primary language spoken (96).

There is also a need for concerted systemic efforts to increase palliative care education for primary care physicians and non-palliative care specialists. This includes clarifying the role of palliative care to patients and providers as a specialty that focuses on symptom management, rather than a specialty limited to providing end-of-life care. This

may help improve early integration of palliative care into routine patient care for those with significant cardiovascular disease, independent of prognosis at the time.

Optimizing routine clinical care

Symptom management: by optimizing cardiovascular symptoms, palliative care has the potential to improve cardiovascular health and reduce costs and hospitalizations (24). Symptom management is core to the treatment of heart failure, and life prolonging therapy often improves symptoms. However, life prolonging therapy may not be enough to adequately manage symptoms at the end of life. Fortunately, there exist practical medical therapies to help manage cardiovascular symptoms (*Table 3*) as well as assessment tools (*Table 4*) to help quantify these symptoms. Routinely integrating geriatric assessments will also help optimize care for older adults with chronic heart disease. While these geriatric and palliative care tools are not yet widely used in daily cardiology clinical care, they may prove to be helpful tools for clinicians to track the severity of patient symptoms over time.

Social, spiritual, and psychologic care: the pharmacologic therapies discussed above must be used in conjunction with multi-modal holistic palliative care tools. Among outpatients with heart failure, greater spiritual well-being is associated with lower rates of depression (106). Enhancement of patients' sense of spiritual well-being might reduce or prevent depression and thus improve quality of life and other outcomes in this population. Palliative care services and connections to social workers and chaplains may also help provide patients and caregivers support for grieving and illness coping.

Early integration of ACP: early assessment and yearly re-assessment of GOC and ACP (including resuscitation limits, health care proxy identification, and plans for cardiac device de-activations) prior to catastrophic clinical changes is crucial (107). These discussions can and should start with the initiation of disease modifying and curative intent treatments, even in those with a good prognosis.

If a clinician is not comfortable implementing the above strategies, early referral to secondary palliative care and interdisciplinary healthcare workers is essential.

Conclusions

Advanced heart disease is characterized by significant physical symptoms, hospitalizations with acute changes in

Table 3 Cardiovascular disease symptoms and medical management

Symptom	Example treatments
Dyspnea	Diuresis, guideline-directed medical therapy for heart failure, opioids, valve repair/replacement, nitrates, coronary revascularization, cardiac rehabilitation
Anorexia	Mirtazapine, dronabinol, steroids
Fatigue	Stimulants
Depression	SNRI/SSRI
Weakness	Physical therapy, cardiac rehabilitation
Angina	Nitrates, beta blockers, ranolazine, valve repair/replacement, opioids, coronary revascularization
Pain	Tylenol, opioids, topical analgesics, systemic NSAIDs (balancing bleeding risk, comorbidities, and renal function), physical therapy
Nausea (97)	Dopamine antagonists (metoclopramide), 5HT ₃ receptor antagonists (ondansetron), anti-histamines, NK ₁ receptor antagonist (aprepitant), scopolamine, dronabinol, anti-psychotics, benzodiazepines, steroids, haloperidol, prochlorperazine, behavioral techniques, acupuncture
Dry mouth	Oral lubricants
Anxiety	SSRI/SNRI, opioids, benzodiazepines, antipsychotics, behavioral techniques
Constipation	Senna, polyethylene glycol, bisacodyl, metoclopramide, methylnaltrexone (if opioid induced), enemas
Insomnia	Sleep hygiene, melatonin, trazodone

SSRI, selective serotonin reuptake inhibitors; SNRI, serotonin-norepinephrine reuptake inhibitors; NSAIDs, non-steroidal anti-inflammatory drugs; NK₁, neurokinin 1.

Table 4 Validated tools to assess palliative, geriatric, and cardiovascular symptoms

Tool	Symptoms
Needs Assessment Tool: Progressive Disease – Heart Failure (98)	Breathlessness, medication difficulty, help with ADLs, caregiver availability and wellbeing
Memorial Symptom Assessment Scale-Short Form (99)	Pain, lack of energy or appetite, feeling drowsy, constipation, or dry mouth, or feeling sad or irritable
Geriatric Depression Scale-Short Form (100)	Anhedonia, boredom, fear, happiness, energy level
Kansas City Cardiomyopathy Questionnaire (101)	Shortness of breath, fatigue, ankle swelling
Integrated Palliative Care Outcome Scale (102)	Pain, shortness of breath, weakness, nausea/vomiting, lack of appetite, constipation, dry mouth, poor mobility
HeartQoL (103)	Fatigue, shortness of breath, worry, frustration, depression, relaxation
Minnesota Living with Heart Failure Questionnaire (104)	Ankle/leg swelling, shortness of breath, fatigue, poor memory or concentration, depression
Functional Assessment of Chronic Illness Therapy (105)	Physical well-being, social/family well-being, emotional well-being, functional well-being

ADLs, activities of daily living.

clinical status, changes in quality of life, geriatric syndromes, depression, polypharmacy, and caregiver burden. Palliative care for older adults with heart disease must therefore be integrated into routine care to appropriately manage these considerations. This care is complementary to, and not exclusive of, life-prolonging medical and procedural treatments. However, there are many barriers to older adults accessing appropriate palliative care for heart disease. Expanding knowledge of geriatrics and palliative care considerations to other specialties, empowering these clinicians to implement palliative care tools, and developing novel specialty-aligned palliative care teams may help facilitate this integration. Future areas of research include exploring how to optimize models of integrating palliative care in areas with limited access to specialty care, how to improve palliative care education for cardiologists and primary care physicians, how to best support caregivers of those with cardiovascular disease, and how to eliminate racial and ethnic disparities in the delivery of palliative care for older adults with cardiovascular disease.

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