Review Article | Palliative Medicine and Palliative Care for Serious or Advanced Diseases

Palliative care considerations for the older adults with HIV/AIDS: a clinical practice review

Phanthira C. Tamsukhin[1], Raffaele M. Bernardo[2], Serife Eti[1]^

[1]Palliative Medicine Program, Department of Family and Social Medicine, Albert Einstein College of Medicine, Montefiore Medical Center, Bronx, NY, USA; [2]Division of Infectious Diseases, Albert Einstein College of Medicine, Montefiore Medical Center, Bronx, NY, USA

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Correspondence to: Serife Eti, MD. Palliative Medicine Program, Department of Family and Social Medicine, Albert Einstein College of Medicine, Montefiore Medical Center, 3347 Steuben Ave, Bronx, NY 10467, USA. Email: seti@montefiore.org.

Abstract: Human immunodeficiency virus (HIV) has historically been viewed as a terminal condition affecting younger populations, however, with advancements in antiretroviral therapy (ART) and better healthcare provisions, people with HIV are now living longer than ever before. This shift has highlighted the need to readdress the end-of-life care needs of patients aging with HIV. People aging with HIV face a double burden. Aging itself comes with an array of health challenges, including cognitive decline, frailty, and increased susceptibility to chronic illnesses. Despite effective management with ART, HIV is associated with ongoing inflammation, and may accelerate aging processes, increasing the risk of certain cancers and comorbidities, as well as an increased risk of cardiovascular disease. The stigma surrounding HIV, though diminished over the years, still lingers. People living with HIV have experienced decades of intersecting stigmatized identities in the context of social isolation, leading to potential psychological challenges like depression, anxiety, and loneliness, all of which may be amplified by aging. Addressing these emotional and social needs is as crucial as managing their physical health. The integration of primary palliative care into geriatric practice is crucial, as it improves the quality of life for older patients with chronic illnesses, life-limiting conditions. This is particularly relevant for aging individuals with HIV, who often face complex medical needs and multiple comorbidities. Primary palliative care is the basic, integrated palliative care support provided by non-specialists as part of routine care, while specialist palliative care involves more complex and specialized support from a team with specific training in palliative care. Incorporating palliative care principles enables geriatric healthcare providers to address these comprehensive needs more effectively. This approach encompasses not only physical symptom management but also the emotional well-being of patients. It aids in advanced care planning and decision-making that resonate with the patients' values and goals. Ultimately, this integrated approach leads to improved patient outcomes and a higher quality of care. This review delves into the unique considerations and challenges of providing palliative care to people aging with HIV, recognizing the interplay of age and HIV in the era of modern ART.

Keywords: Older adult; human immunodeficiency virus (HIV); palliative care; end of life care

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^ ORCID: 0000-0001-8058-1842.

Introduction

Palliative care is a specialized medical care approach that focuses on improving the quality of life for individuals facing serious, life-limiting illnesses. The primary goal of palliative care is to provide relief from the symptoms and stress associated with the illness, with the aim of enhancing the overall quality of life of the patient. Palliative care is comprehensive and addresses physical symptoms, emotional, social, and spiritual needs of patients. It is not limited to end-of-life care; rather, it can be integrated at any stage of a serious illness, alongside curative or life-prolonging treatments.

Palliative care is categorized into primary and specialist levels. Primary palliative care represents the foundational level, seamlessly integrated into the routine care administered by health professionals who are not palliative care specialists. It encompasses the management of common symptoms, provision of basic emotional and psychological support, and facilitation of discussions regarding prognosis and care objectives. Conversely, specialist palliative care is delivered by healthcare professionals with specialized training and expertise in this field. This advanced level of care is typically reserved for more complex or challenging cases, necessitating sophisticated symptom management, navigation of intricate family dynamics, or intricate decision-making processes concerning the illness trajectory. Teams providing specialist palliative care commonly comprise palliative care physicians, advanced practice nurses, physician assistants, social workers, chaplains, and other professionals such as music therapist, nutritionist, psychologist. Together, they offer comprehensive support to patients experiencing serious, life-limiting illnesses and their families.

Regular human immunodeficiency virus (HIV) testing and prompt initiation of antiretroviral therapy (ART) have significantly improved life expectancy in people living with HIV (PLWH) transforming HIV from a terminal diagnosis to a manageable condition (1,2). In 2021, over half of the HIV-positive population was aged 50 years or older, with this age group also accounting for 16% of new diagnoses, indicating an aging HIV-positive demographic. The proportion of PLWH who are 50 years and above is projected to continue to increase both in the US and globally. In fact, it is estimated that by 2030, 73% of PLWH will be older than 50 years (3). These individuals aging with HIV are disproportionately and prematurely impacted by conditions associated with aging, such as multimorbidity, cardiovascular disease polypharmacy, cognitive impairment, and functional decline (4).

The care of people aging with HIV is thus evolving from a narrow focus on HIV disease and its associated opportunistic infections (OIs), to complex care management of multiple chronic illnesses that requires a multidisciplinary approach. This review focuses on addressing the palliative care needs of older adults living with HIV and multiple chronic illnesses, and it also explores the existing gaps in the delivery of palliative care.

Methods

The online search held by using databases OVID Medline(R), PubMed, Cochrane Database of Systematic Reviews, Google Scholar, with search terms "HIV, AIDS, palliative care, end of life care, mortality, causes of mortality and advance care planning, hospice" to target current palliative care models, prognostication and screening tools. We aimed to find care gaps and provide recommendations on how to integrate palliative care to care of people aging with HIV. Total 1,184 publications found, and 211 were for full text reviewing. Total of 73 articles published in peer reviewed journals are included. The review of 26 peer reviewed articles published in USA was guided by Preferred Reporting Items for Systematic Reviews and Meta-Analyses extension for Scoping Reviews (PRISMA-ScR) (5).

Understanding the impact of aging and HIV related co-morbidities

Older adults with HIV are now experiencing typical age-associated conditions such as cardiovascular disease, low bone density, and neurocognitive disorders; however, HIV and its treatment can also exacerbate these issues, leading to heightened vulnerability. Non-acquired immunodeficiency syndrome (non-AIDS) causes of mortality in the context of widespread ART can be broadly categorized into three main areas: comorbidities, lifestyle factors, and medication-related complications. This highlights the importance of early diagnosis, management of comorbidities, and age-appropriate screening (6).

Aside from the increased risk of non-HIV related comorbidities such as cardiovascular disease, diabetes, liver disease, and non-AIDS-associated malignancies, there is also increased risk for neuro-cognitive impairment and depression (7). These comorbidities can significantly impact the quality of life for older adults and increase the risk of mortality. Lifestyle factors, such as smoking, and substance

Table 1 General referral criteria for palliative care consultation

Primary criterion
Presence of a serious or chronic illness
Secondary criteria (1 or 2)
Declining ability to complete activities of daily living
Unintentional progressive weight loss
Multiple ED visits and/or hospitalizations (3 or more in the last 365 days)
Difficult to control physical or emotional symptoms related to serious medical illness
Patient, family, or physician uncertainty regarding prognosis or goals of care
Conflicts around establishing advance directives, advance care planning
Use of tube feeding or TPN in cognitively impaired or seriously ill patients with no foreseeable benefit
Limited social support and a serious illness (e.g., homeless, befriended, chronic mental illness)
Patient, family, or physician request for information regarding palliative care options or hospice benefit
Patient or family psychological or spiritual distress (e.g., death anxiety)

Available at: Getpalliativecare.org/resources/clinicians. ED, Emergency Department; TPN, total parenteral nutrition.

use can contribute to non-AIDS causes of mortality in people living with HIV (8).

A new study analyzing data from 33,200 adults between the ages of 18 and 59 revealed that health disparities between individuals with and without HIV become more pronounced with age (9). These age-related differences are potentially attributable to later diagnoses in older patients, as well as less effective responses to ART, such as lower CD4 counts which might be associated with a mediated immune reconstitution (10).

The co-administration of antiretroviral drugs and other medications is frequently observed in older adults, making this demographic more susceptible to adverse events related to drug-drug interactions (11). Collaboration between health care providers and a pharmacist to identify and mitigate potential drug-drug interactions and negative side effects is essential for maintaining the health and wellness of people living with HIV who are also managing multiple coexisting conditions. Turrini *et al.* have reported that individuals with HIV are statistically more likely to have higher odds of depression, chronic kidney disease, chronic obstructive pulmonary disease (COPD), osteoporosis, hypertension, ischemic heart disease, diabetes, chronic hepatitis, end-stage liver disease, lung cancer, and colorectal cancer (12,13). The study also discovered that older individuals with HIV are disproportionately likely to come from potentially underserved communities, including minorities, who make up 49% of older HIV-positive individuals. Additionally, PLWH who are 65 years or older face a higher risk of multiple coexisting medical conditions compared to other beneficiaries of fee-for-service Medicare (14).

As the number of older adults living with HIV in the United States continues to rise, it is crucial to consider the evaluation and management of age-related comorbidities in their clinical treatment. Incorporating elements of palliative care into their overall disease management strategy can significantly improve their quality of life. Acknowledging the complex interplay between aging, long-term management of HIV, and the related psychosocial issues is the initial step towards providing effective palliative care.

Screening for palliative care needs of people aging with HIV

The specialist level palliative care consultation services may not be available at all outpatient settings. Therefore, it is important to incorporate palliative care into practice of geriatricians, primary care providers, and infectious diseases specialists who provide medical care for people aging with HIV. Triggers for a specialist level palliative care consultation for patients with HIV and co-morbid conditions are similar to general criteria for a palliative care consult (see *Table 1*).

Given the potential stigma and discrimination in older adults with HIV (15), healthcare professionals can try to create a supportive and inclusive environment for terminally ill older patients by addressing the physical, emotional, and social impact while trying to achieve the best possible quality of life (QoL). Mitigating deeply ingrained psychosocial conditions is complex but also necessary to optimize QoL of patients with HIV and advanced illness. Screening for palliative care needs includes identifying individuals who may benefit from palliative care services for symptom management, alleviate high physical burden, provide psychological support, and improve quality of life (16). It is important to note that screening for palliative care does not mean giving up on curative treatments. Palliative care can be provided alongside curative treatments

Table 2 Geriatric care 5Ms' framework

Category	Description	Screening areas
Mind	Cognitive and emotional well-being	Memory, depression, anxiety
Mobility	Physical movement and balance	Fall risk, gait, strength
Multimorbidity	Presence of multiple chronic diseases	Hypertension, diabetes, COPD, cancer
Medications	Appropriateness and safety of drug regimen	Drug-drug interactions, side effects
Matters most	Patient's values, preferences, and care goals	End-of-life wishes, preferred treatment options

Adapted from: Siegler EL. Addressing the Needs of Older Patients in HIV Care. May 5, 2023. https://www.hivguidelines.org/guideline/hiv-aging/?mycollection=hiv-care. Accessed on April 22, 2024. COPD, chronic obstructive pulmonary disease.

to improve quality of life and provide holistic care. Palliative care specialist teams can help navigate through unique challenges and needs of terminally ill older adults living with HIV. This may include providing support for advance care planning, role of life sustaining treatments in patients with terminal prognosis (17).

Traditional geriatric assessment tools like the Geriatric Depression Scale (GDS) and the Mini-Mental State Examination (MMSE) can help identify psychological and cognitive symptoms that may require attention. The geriatric care model emphasizes a focus on the "5Ms": mind, mobility, multimorbidity, medications, and matters most, serves as an effective tool for both communication and selecting specific areas for screening and assessment (18). The 5Ms are a useful way to communicate and choose an area for screening (*Table 2*).

We advise employing the Edmonton Symptom Assessment Scale (ESAS) as a go-to instrument for gauging and continually re-examining symptoms. It is a frequently used tool by palliative care providers. This straightforward numerical scale evaluates nine prevalent symptoms, including pain, fatigue, nausea, depression, anxiety, drowsiness, appetite, overall well-being, and breathlessness. Initially created in 1991, the ESAS has undergone psychometric validation and has been translated into more than 20 languages, with a subsequent revised version (ESAS-r) (19). ESAS-r tool can also be customized for evaluating the symptom burden in HIV patients, assisting in effective symptom management (*Figure 1*). A thorough pain evaluation can assist in determining the type and severity of the pain, thereby facilitating individualized pain management approaches. Routine assessments of symptoms and functional status can help in the early identification of emerging problems, enabling prompt intervention, and minimizing the worsening of symptoms.

The Karnofsky Performance Status (KPS) scale (20) which can aid to assess a patient's functional status across clinical care settings, can be helpful in determining a patient's level of independence and functional ability. The KPS functional assessment tool was developed in 1948, enabling physicians to evaluate a patient's ability to survive cancer chemotherapy. It is widely utilized by Palliative Care Specialists and applied to a wide spectrum of patients with advanced illnesses (*Table 3*). This instrument can be adapted to account for the unique difficulties and functional constraints experienced by older PLWH and additional chronic conditions.

The Veterans Aging Cohort Study (VACS) 2.0 Index has been utilized to estimate morbidity and mortality risk. Multiple observational studies suggest that this index offers better predictive accuracy compared to both individual and combined indices currently being employed (*Table 4*). The (VACS) 2.0 Index incorporates factors such as age, standard lab tests including CD4 count, HIV-1 RNA, hemoglobin, platelets, aspartate aminotransferase (AST) and alanine transaminase (ALT), estimated glomerular filtration rate (eGFR), albumin and hepatitis C status (*Table 4*) (21,22). It is recommended for estimating short- and long-term risk of morbidity and mortality, estimating life expectancy, quantifying response to interventions, and detecting HIV and non-HIV treatment toxicity.

Normal aging comes with a gradual reduction in physiological capabilities. The presence of frailty syndrome exacerbates this decline in older individuals (23). Multiple factors make adults with HIV more susceptible to frailty, such as extended duration since HIV diagnosis, low CD4 cell counts, detectable levels of plasma HIV RNA, body mass indices that are either too low or too high, untreated Hepatitis C infections, diabetes, kidney issues, and prolonged use of ART (24,25). Symptoms of frailty can include severe fatigue, frequent falls, and inconsistent mental and physical functioning (26). Frailty is characterized by the

Edmonton Symptom Assessment System Revised (ESAS-r)

Please circle the number that best describes how you feel NOW:

No Pain	0	1	2	3	4	5	6	7	8	9	10	Worst Possible Pain
No Tiredness *(Tiredness = lack of energy)*	0	1	2	3	4	5	6	7	8	9	10	Worst Possible Tiredness
No Drowsiness *(Drowsiness = feeling sleepy)*	0	1	2	3	4	5	6	7	8	9	10	Worst Possible Drowsiness
No Nausea	0	1	2	3	4	5	6	7	8	9	10	Worst Possible Nausea
No Lack of Appetite	0	1	2	3	4	5	6	7	8	9	10	Worst Possible Lack of Appetitie
No Shortness of Breath	0	1	2	3	4	5	6	7	8	9	10	Worst Possible Shortness of Breath
No Depression *(Depression = feeling sad)*	0	1	2	3	4	5	6	7	8	9	10	Worst Possible Depression
No Anxiety *(Anxiety = feeling nervous)*	0	1	2	3	4	5	6	7	8	9	10	Worst Possible Anxiety
Best Wellbeing *(Wellbeing = how you feel overall)*	0	1	2	3	4	5	6	7	8	9	10	Worst Possible Wellbeing
No _____ Other Problem *(For example constipation)*	0	1	2	3	4	5	6	7	8	9	10	Worst Possible _____

Patient Name _____

Date *(yyyy-Mon-dd)*

Time *(hh:mm)*

Completed by *(Check one)*
- ☐ Patient
- ☐ Family Caregiver
- ☐ Health Care Professional Caregiver
- ☐ Caregiver-assisted

Body Diagram on Reverse

Figure 1 Edmonton Symptom Assessment Scale-Revised. Available at https://www.albertahealthservices.ca/frm-07903.pdf.

existence of three or more of the following five criteria:

(I) Involuntary weight loss,
(II) Self-described fatigue,
(III) Reduced energy output,
(IV) Slowed walking pace, and
(V) Poor grip strength.

Screening for frailty could provide another useful tool to measure and guide the delivery of palliative care.

Utilizing patient-reported outcome measures (PROMs) serves to evaluate a patient's health condition at a specific moment, while also encouraging patients to openly share their experiences. This strengthens the patient-healthcare provider bond and fosters individualized care. In the context of PLWH, PROMs have demonstrated their ability to reliably forecast key health outcomes like morbidity, mortality, and healthcare costs. Although there are limited PROMs designed for PLWH, none have been specifically created for aging individuals with HIV (27). Patient-Reported Outcomes Quality of Life-HIV (PROQOL-HIV) has been specifically tailored for HIV patients. It includes domains such as symptoms, treatment impact, and social relationships (28). These tools can serve as starting point for assessing palliative care needs in older patients with HIV.

Common co-morbid conditions increasing morbidity and mortality risk in patients aging with HIV

In the modern ART era, prognostication is complicated by numerous factors. For example, PLWH who are diagnosed and treated early with ART have significantly improved life expectancy compared to those who are diagnosed and treated later (29). Resistance to ART leading to treatment failure is uncommon. Several other factors have been found to correlate with a worse prognosis for individuals living with HIV (21,22). Delayed diagnosis and initiation

Table 3 The Karnofsky Performance Score

Score	Description
100	Normal; no complaints; no evidence of disease
90	Able to carry on normal activity, minor signs or symptoms of disease
80	Normal activity with effort; some signs or symptoms of disease
70	Cares for self; unable to carry out normal activity or to do active work
60	Requires occasional assistance, but can care for most of their personal needs
50	Requires considerable assistance and frequent medical care
40	Disabled; requires special care and assistance
30	Severely disabled; hospital admission is indicated although death not imminent
20	Very sick; hospital admission is necessary; active supportive treatment is necessary
10	Moribund; fatal processes progressing rapidly
0	Dead

Available at http://www.npcrc.org/files/news/karnofsky_performance_scale.pdf.

Table 4 The VACS 2.0 index

Variable	Description
Age	Patient's age in years
Gender	
BMI	kg/m^2
CD4 count	$\times 10^6$ cells/L
HIV-1 RNA	Viral load in copies/mL
Hemoglobin	g/dL
Platelet count	$\times 10^3$/μL
WBC	$\times 10^3$/μL
Hepatitis C status	Presence of hepatitis C infection
eGFR	mL/min/1.73 m^2
ALT	U/L
AST	U/L
Albumin	g/dL

Available at https://www.mdcalc.com/calc/10402/veterans-aging-cohort-study-vacs-2.0-index. VACS, veterans aging cohort study; BMI, body mass index; HIV, human immunodeficiency virus; WBC, white blood cells; eGFR, estimated glomerular filtration rate; ALT, alanine transaminase; AST, aspartate aminotransferase.

of treatment can lead to a more advanced stage of HIV infection, resulting in a compromised immune system and higher risk of complications including OIs. Co-infections such as viral hepatitis can accelerate and lead to hepatic complications if not treated. Socioeconomic factors, access to healthcare and inadequate support systems can impact patient's adherence to treatment and prognosis. One of the most used prognostic tools in patients living with HIV is the VACS Index which combines seven variables to predict mortality in PLWH (*Table 4*). Most common co-morbid conditions may contribute to increased mortality risk are summarized below.

Cardiovascular disease (CVD)

CVD, such as heart attacks and strokes, rank among the top causes of death for older PLWH, a trend that mirrors the general population. However, it is important to note that PLWH face a higher relative risk for various forms of CVD, typically ranging from 1.5 to 2 times greater, compared to those who are not infected with HIV (30). The underlying causes for this increased risk of cardiovascular diseases in PLWH are complex and likely involve a combination of factors. These include traditional risk elements like high blood pressure and cholesterol, along with HIV-specific contributors such as chronic immune activation and inflammation (31). ART can also introduce its own set of risks, including dyslipidemia and other metabolic complications. Lifestyle choices, like substance use or a lack of physical activity, further compound these risks (32). Additionally, disparities in healthcare access and utilization also play a role in this elevated risk (33).

Cancer

Cancer is the second leading cause of mortality in PLWH. The incidence of AIDS defining malignancies such as Kaposi sarcoma (KS) and non-Hodgkin lymphoma has decreased since the introduction of ART as CD4 counts are improving (34). The risk of KS increases with lower CD4-T cell count. Five-year survival for non-visceral KS is 92% and while that of visceral KS is 82.6% (35).

According to the National Cancer Database (NCDB), over 52,000 PLWH were diagnosed with cancer between the years 2004 and 2018 (36). Compared to their HIV-negative counterparts, these individuals were generally younger, predominantly male, more often insured by Medicaid, lived in lower-income areas, and were less likely

to be white. Lung cancer was the most commonly diagnosed cancer among both PLWH and HIV-negative adults. Other cancers that were frequently diagnosed in PLWH included diffuse large B-cell lymphoma (DLBCL) at 16%, KS at 11%, and colorectal, anal, and prostate cancers at 11% and 8%, respectively (37).

In terms of cancer staging, PLWH were more likely to receive a stage IV diagnosis compared to HIV-negative adults (32% *vs.* 19%, P<0.001). Interestingly, only 5% of PLWH diagnosed with cancer received palliative care, although they were 25% more likely to receive such care compared to HIV-negative individuals. Despite advances in ART that have reduced the overall risk of many HIV-associated cancers, older PLWH still face a higher likelihood of not only developing these cancers but also succumbing to them (37,38).

Neurocognitive disorders

Neurological issues linked to HIV, including HIV-associated neurocognitive disorders (HAND) and central nervous system (CNS) OIs, are significant factors that can exacerbate morbidity and mortality among older adults living with HIV (39). Multiple research efforts centered on people with HIV have identified an array of contributing elements that lead to cognitive deterioration. These factors encompass frailty, a low baseline CD4 cell count, the presence of HIV RNA in blood plasma, previous injuries to the CNS, and assorted coexisting conditions such as viral hepatitis, psychiatric illness, and substance abuse disorders (40-42).

Kidney disease

Chronic kidney disease poses a significant risk for older PLWH, particularly those who have experienced antiretroviral drug toxicity or have other medical conditions that impair kidney function. Besides older age, which is a key predictor of chronic kidney disease in adults with HIV, other contributing factors include the use of the drug tenofovir disoproxil fumarate (TDF), being female, having diabetes or hypertension, untreated hepatitis C infection, a history of injecting drugs, prior acute kidney injury, lower CD4 cell counts, and elevated HIV RNA levels (43).

OIs

Older PLWH tend to exhibit a blunted immunological response to ART, leading to a persistent risk of OIs despite viral suppression. Common OIs such as *Pneumocystis jirovecii* pneumonia, *Toxoplasma gondii* encephalitis, and *Mycobacterium avium* complex, once rampant, are now less frequent but still require vigilance. The treatment of OIs in this population necessitates a nuanced approach, balancing the need for efficacy with the potential for drug-drug interactions and the management of co-existing age-related conditions (44,45).

Causes of death in older adults patients with HIV

The causes of death in older patients with HIV in the United States have evolved over time as HIV transitioned to a chronic illness. From 2010 to 2018, there was an overall decrease in death rates by 36.6%. The rates of deaths directly related to HIV dropped by 48.4%, while deaths not related to HIV saw a reduction of 8.6%. When examined by race or ethnicity in the year 2017, the highest rates of HIV-related deaths were observed among individuals of multiple races (7.0 per 100,000), followed by Black/African American individuals (5.6 per 100,000). White and Hispanic/Latino individuals had similar rates at (3.9 per 100,000) (46). It's important to note that the causes of death can vary based on factors such as individual health status, access to healthcare, treatment adherence, and social determinants of health.

Pain and symptom assessment and management

The patients with HIV often experience a diverse range of symptoms that result from a combination of the virus itself, its treatments, and the normal aging process is potentially accelerated in PLWH. Common symptoms include physical discomfort such as pain, fatigue, gastrointestinal disturbances, and neurological complications (47). Additionally, psychosocial symptoms including depression, anxiety, cognitive impairments, and social isolation can significantly impact the overall well-being of this population.

Pain is one of the most reported symptoms and under treated due to fear of addiction from patient and providers, medication side effects. PLWH are more likely to have chronic pain, receive opioid analgesic treatment, receive higher doses of opioids, and have co-morbid conditions such as substance use disorders and mental illness compared with the general population (48,49). The most common pain syndromes in older patients with HIV includes polyneuropathy, antiretroviral toxic neuropathy (ATN). The clinical features of these neuropathies are often dominated

Table 5 Summary of most common HIV associated pain syndromes and treatment options

Common HIV associated pain syndromes	Description	Treatment options
Polyneuropathy	Most prevalent neurological complication in HIV. Occurs in 10–35% of HIV-positive individuals	Pain management with anticonvulsants like gabapentin, pregabalin; antidepressants like amitriptyline; and opioids for severe pain
DSP	Caused by the viral infection itself. Involves direct or indirect nerve damage	Antiretroviral therapy, pain relievers, and possibly corticosteroids for inflammation
ATN	Caused by antiretroviral treatment, specifically NRTIs	Discontinuation or modification of antiretroviral therapy, symptomatic treatment with pain relievers
Painful dysesthesia	Characterized by abnormal sensations like burning or tingling	Topical treatments like capsaicin, systemic treatments like anticonvulsants
Allodynia	A stimulus not previously found to be painful is perceived as painful	Anticonvulsants, antidepressants, and cognitive behavioral therapy
Hyperalgesia	Lowered pain threshold, making patients more susceptible to pain	Opioid rotation, use of non-opioid analgesics, and adjuvant medications

HIV, human immunodeficiency virus; DSP, distal sensory polyneuropathy; ATN, antiretroviral toxic neuropathy; NRTIs, nucleoside reverse transcriptase inhibitors.

by painful dysesthesia, allodynia, and hyperalgesia (*Table 5*). The onset is often gradual, beginning with bilateral lower extremity involvement and progressing in a length-dependent fashion. Management of chronic pain in PLWH can be complex and recommended practice for treatment of chronic pain in PLWH is similar to noninfected patients (50,51). The limited data on chronic opioid treatment in PLWH is conflicting regarding its effect on adherence with ART. Buprenorphine recommended in high-risk patients which may help to improve pain and increase compliance with disease modifying treatments (52). In *Table 6*, the current Centers for Disease Control (CDC) guidelines for prescribing opioids for chronic pain in the United States are summarized (52,53) and applicable to older PLWH and chronic pain. PLWH with greater depressive symptoms experience more pain than those with fewer depressive symptom (54). Older PLWH presenting with chronic pain and depression will benefit from multidisciplinary approach including behavioral health and patients with complex pain syndromes should be consulted with palliative care, and pain medicine specialists.

Fatigue is another prevalent symptom among patients and significantly affects both their quality of life and emotional well-being (55). Fatigue has been linked to anemia, malnutrition secondary to malabsorption or decrease nutritional intake or wasting due to diarrhea, HIV-associated dementia, HIV myopathy, and pain and sleep disturbances in pre-ART era (56). In the ART era, PLWH are a population may be affected by fatigue due to risk factors associated with HIV-infection, co-morbidities, treatment, and psychosocial disease burden. Treatment of fatigue should be focused on the underlying cause. Clinical and pharmacological options include supplements to address hormone imbalances and anemia and to improve nutritional deficiencies that cause fatigue.

Comprehensive symptom assessments serve as a guide for optimizing pain and symptom management and enhancing the patient's quality of life. This might include medication adjustments, opioid risk assessment, pain management strategies, psychotherapy, and resource utilization.

Challenges in advance care planning

In the initial stages of the HIV epidemic, before the advent of effective ART, end-of-life care and early-stage advanced care planning were standard components of clinical management for PLWH; however, as PLWH are now living longer and healthier lives, the focus on advanced care planning has diminished and is frequently neglected in regular HIV primary care (57). We advise healthcare providers who are treating older PLWH with advanced medical conditions to engage in conversations about end-of-life choices. These conversations may help patients to appoint a durable power of attorney for healthcare matters and to fill out state-specific advance healthcare directives, such as Physicians (Medical) Orders for Life Sustaining

Table 6 Summary of the Centers for Disease Control and prevention guideline for prescribing opioids for non-cancer-related chronic pain

Initiating treatment with opioids
Nonpharmacologic and nonopioid therapies are recommended
Establish treatment goals (pain and function levels)
Discuss risks and benefits of opioid use and patient and practitioner responsibilities
Establish multi-modal pain treatment plan
Determining opioid selection, dose, duration, follow-up, and discontinuation
Establish pain contract and treatment goals
Prescribe immediate-release (not long-acting) formulations
Prescribe lowest effective opioid dose (<50–90 morphine milligram equivalent)
Prescribe no greater quantity than needed (enough for ≤3–7 days)
Reevaluate analgesia and side effects
If risk or harms are substantial, taper down or discontinue
Assessing risks and harms of treatment with opioids
Evaluate opioid risk and plan for mitigation strategies
Use a prescription drug monitoring program
Order random urine toxicology tests
Avoid concurrent use of opioids and benzodiazepines
Offer buprenorphine or methadone to treat opioid use disorder

Treatment (POLST/MOLST) forms, to clearly outline their end-of-life care preferences. Challenges may arise concerning the disclosure of the patient's HIV status to their adult children, which can complicate both caregiving and advanced care planning. When considering the option to withhold treatments, it is crucial to approach the matter delicately, ensuring that the patient's autonomy and personal wishes are honored.

One of the most difficult decisions that will need to be made by physicians, patients, and family members is when is the time to stop ART at the end of life. There are no established guidelines for discontinuing ART when a patient is nearing the end of their life. On the other hand, continuing ART in patients with life limiting illness is an important aspect of comprehensive end of life care. Unfortunately, despite its well-established benefits, the number of PLWH in nursing homes receiving ART is less than optimal. In one study, only 36% of nursing home patients received any ART regimen during an average of about 1 year of observation (58). The exclusion of ART did not significantly vary based on whether a resident was at the end of life. While the primary goal of ART is to suppress viral replication and preserve immune function, it can continue to provide substantial benefits at the end of life including improved quality of life, prolonging survival, and the mitigation of HIV-related complications. For example, by reducing the risk of OIs, ART can, in turn, alleviate symptoms and enhance a patient's overall well-being at the end of life. Moreover, by preserving immune function, it reduces the likelihood of additional infections, minimizing the burden on patients already facing significant health challenges. ART also helps to destigmatize HIV, as it underscores the commitment to treating every patient with dignity and respect, regardless of their prognosis. It also serves as a reminder to both patients and healthcare providers that even in the face of a terminal illness, an emphasis should be placed on patient comfort. Although concerns surrounding potential side effects and complexities of ART were common in the past, most PLWH, including those at the end of life, can be maintained on a straightforward, well-tolerated regimen.

Hospice care

Hospice care is centered around end-of-life stages, typically for patients with a prognosis of six months or less to live. The hospice team offers comprehensive support to help patients transition through the dying process, while also guiding their families during these challenging times. Trained hospice professionals in grief counseling provide bereavement services to the families, extending up to 13 months following the patient's death. Inequalities in accessing hospice care are a significant concern. Historically, hospice populations have predominantly consisted of white, middle-class, cancer patients. Several barriers impede equitable access: prognostic uncertainty, institutional cultures, specific needs of diverse groups, and limited public awareness of Medicare Hospice benefit (59). These challenges continue to confront the hospice movement in its efforts to ensure equal access for everyone.

In the modern landscape of ART, often comorbid conditions, not HIV, which serve as the main catalyst for hospice referrals. Medicare criteria for hospice eligibility (general and disease specific criteria) summarized in *Table* 7 (60).

Table 7 Summary of the CMS criteria for hospice eligibility in patients with HIV, including essential criteria, specific clinical conditions, and additional supporting documentation that strengthens the case for hospice care eligibility (available at: https://www.vitas.com/for-healthcare-professionals/hospice-and-palliative-care-eligibility-guidelines/hospice-eligibility-guidelines/hiv-and-aids)

Criteria	Description
Essential criteria (both must be present)	
a. CD4 count	<25 cells/mm^3 or viral load >100,000 copies/mL
b. Decreased performance status	KPS scale of ≤50
Clinical conditions (at least 1 of the following)	
a.	CNS lymphoma
b.	Untreated, or not responsive to treatment, wasting (loss of 33% lean body mass)
c.	MAC bacteremia, untreated, unresponsive to treatment, or treatment refused
d.	Progressive multifocal leukoencephalopathy
e.	Systemic lymphoma, with advanced HIV disease and partial response to chemotherapy
f.	Visceral Kaposi's sarcoma unresponsive to therapy
g.	Renal failure in the absence of dialysis
h.	Cryptosporidium infection
i.	Toxoplasmosis, unresponsive to therapy
Supporting documentation (documentation of any will support eligibility)	
a.	Chronic persistent diarrhea for 1 year
b.	Persistent serum albumin <2.5
c.	Concomitant, active substance abuse
d.	Age >50 years
e.	Absence of antiretroviral, chemotherapeutic, and prophylactic drug therapy related specifically to HIV disease
f.	Advanced AIDS dementia complex
g.	Toxoplasmosis (repeated for emphasis from clinical conditions)
h.	CHF, symptomatic at rest

CMS, Center for Medicare & Medicaid Services; KPS, Karnofsky Performance Status; CNS, central nervous system; MAC, mycobacterium avium complex; HIV, human immunodeficiency virus; AIDS, acquired immunodeficiency syndrome; CHF, congestive heart failure.

Conclusions

The population aging with HIV has been increasing due to transformation of HIV/AIDS from a terminal disease to a chronic illness in the United States. Cardiovascular disease and cancer are leading causes of death in older PLWH. People aging with HIV experience a unique intersection of age-related challenges, comorbid conditions, and the complexities of a historically stigmatized illness. Primary care providers and geriatric specialists can assist by addressing patient's most important concerns as a starting point for advanced care planning. Every office visit presents a chance to reassess care objectives and delve into emotional stressors, financial hurdles, and formulate approaches to help patients surmount these obstacles. Through effective symptom control and streamlined care coordination, health care professionals can significantly improve the quality of life for people aging with HIV who are also dealing with terminal conditions. Although palliative and hospice care are proven to enhance patients' quality of life, their use remains limited. This underutilization is partially due to various factors, such as a lack of awareness and misconceptions among patients and caregivers about these services. Utilizing resources such as the Medicare Hospice

benefit when appropriate can be a valuable addition to their overall care strategy. Continued research is crucial for fine-tuning assessment, developing validated, user-friendly screening instruments, and establishing guidelines for palliative care that are specifically designed for the expanding demographic of older PLWH with multiple coexisting conditions. Well conducted studies are needed to study populations aging with HIV with non-malignant diseases and mixed diagnoses, symptom burden, achieving patient preferred place of care, patient satisfaction with care, caregiver outcomes (satisfaction with care, burden, depression, anxiety, grief, quality of life) by comparing standard care with palliative care integrated geriatric care models (61).

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