HIV-Associated Kaposi Sarcoma in the Combination Antiretroviral Therapy Era

An update on incidence, characteristics, and management.

ABSTRACT: Kaposi sarcoma is a tumor caused by Kaposi sarcoma herpesvirus, also known as human herpesvirus 8. Its occurrence is associated with an immunocompromised state. Kaposi sarcoma that occurs among people living with HIV (PLWH) is known as epidemic Kaposi sarcoma. Despite the decline in HIV-associated complications because of the introduction of combination antiretroviral therapy two decades ago, Kaposi sarcoma continues to affect PLWH worldwide. It affects young African American men more than other age and racial groups and can result in multiorgan dysfunction, leading to short-term and chronic debilitating symptoms as well as death. While some patients with epidemic Kaposi sarcoma are managed as outpatients, others may require higher levels of care and their acuity may fluctuate throughout their life span. Therefore, nurses, regardless of their specialty, may experience caring for a patient with epidemic Kaposi sarcoma at some point in their career. Learning about this condition and the needs of patients who have it will help nurses provide effective care. Here, the authors describe Kaposi sarcoma in general as well as the epidemiology, characteristics, and management of epidemic Kaposi sarcoma. They also describe specific nursing considerations in the care of PLWH who have the disease.

Keywords: HIV, human herpesvirus, Kaposi sarcoma, opportunistic infection, people living with HIV

In 1981, before HIV was discovered and the term AIDS was coined, the Centers for Disease Control and Prevention published a report on the occurrence of Kaposi sarcoma among 26 men who have sex with men (MSM) in New York City and California.[1-3] HIV-associated Kaposi sarcoma was later reported as part of the spectrum of conditions and opportunistic infections associated with AIDS. Its prominent appearance on the skin led to stigmatization of people living with HIV (PLWH) during the height of the AIDS epidemic.[4] It continues to cause physical and mental distress in this population to this day.

The introduction of combination antiretroviral therapy (cART) in 1995 effectively reduced morbidity and mortality among PLWH.[5] In addition to

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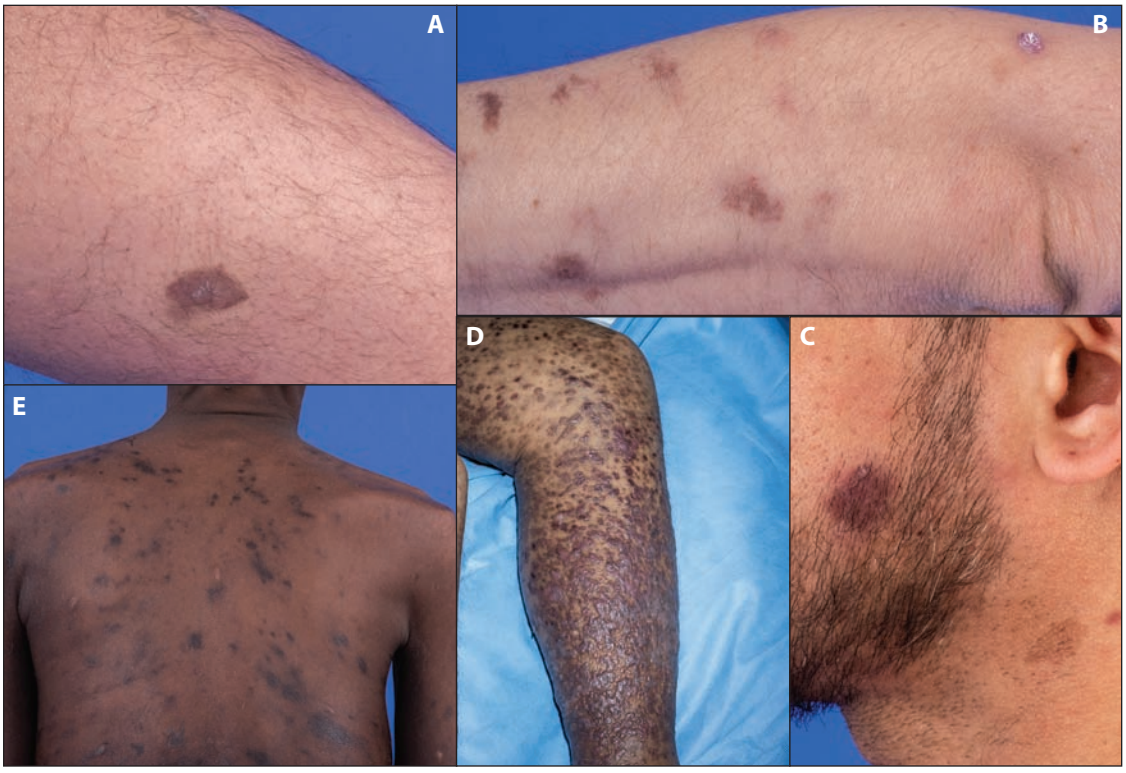

Figure 1. Examples of cutaneous Kaposi sarcoma lesions include, clockwise from left, (A) a solitary flat and scaly lesion on the lateral thigh; (B) flat lesions on the arm with irregular or indistinct borders in various shades of brown and purple, and a nodular and scaly lesion at the level of the elbow; (C) a flat, dark purple patch with a nodule on the face; (D) purple and nodular confluent lesions on the leg with accompanying lymphedema; and (E) multiple lesions, some nodular and some flat, diffusely distributed on the back. To protect patient privacy, the images in this article are nonidentifiable.

major advances in the treatment of HIV, strong public health policies and programs in response to the AIDS epidemic have effectively reduced complications from HIV infection.[6] However, AIDS-defining conditions such as Kaposi sarcoma continue to affect PLWH. Kaposi sarcoma remains one of the most common cancers affecting PLWH worldwide, even in high-income countries where this population has better access to medications.[7-9] Between 2001 and 2015, 1.3% of cancer-attributable deaths among PLWH were from Kaposi sarcoma.[10]

While Kaposi sarcoma has persisted in the cART era, nurses in some settings may encounter it infrequently, putting them at a disadvantage when they need to provide treatment to a patient who has the disease. Therefore, it's important that nurses are well informed about Kaposi sarcoma so they may provide effective, patient-centered care to patients with this debilitating and stigmatizing condition. This article provides an overview of the disease and describes what patients typically go through from diagnosis to treatment. The article also highlights certain aspects of the care continuum where nurses can impact outcomes.

KAPOSI SARCOMA HERPESVIRUS–ASSOCIATED CANCERS

Kaposi sarcoma is a vascular, multicentric tumor caused by Kaposi sarcoma herpesvirus (KSHV), also known as human herpesvirus 8, which is part of the gammaherpesvirus family.[11,12] Salivary contact is believed to be the primary route of transmission, but sexual contact or transfusion with contaminated blood can also lead to infection.[13] (Although KSHV infection from contaminated blood is possible, the virus isn't ubiquitous, and there have been no reports of widespread outbreaks from blood transfusions; as a result, it's not routinely screened for during blood donation.) Infection with KSHV alone does not usually lead to the onset of Kaposi sarcoma. Tumor development is dependent on factors such as the host

Table 1. Five Epidemiological Types of Kaposi Sarcoma[18,19]

Type of Kaposi Sarcoma	Affected Population
Classic	Elderly men of Mediterranean, Eastern European or Jewish, and South American descent
Endemic	Children in sub-Saharan Africa
Iatrogenic	Patients on long-term immunosuppressive therapy
Epidemic	PLWH
Nonepidemic	HIV-negative MSM

MSM = men who have sex with men; PLWH = people living with HIV.

immune function and inflammatory mechanisms.[14] The association between Kaposi sarcoma and immunosuppression is supported by the higher prevalence of the disease among hosts with weaker immune systems, such as those who underwent organ transplant or have HIV.[15] In healthy hosts, KSHV infection may simply result in dormancy.[16] Therefore, it isn't necessary to isolate patients solely because of suspicion of or known KSHV infection.

Kaposi sarcoma affects people with and without HIV, although PLWH are over 500 times more likely to develop it.[17] Five epidemiological types of Kaposi sarcoma have been identified: classic, endemic, iatrogenic, epidemic, and nonepidemic (see Table 1[18,19]).[18,19] Epidemic Kaposi sarcoma is the only type associated with HIV infection.

Classic Kaposi sarcoma was first described by Moritz Kaposi in 1872 among older Mediterranean men who developed nodular lesions on their lower extremities.[18,20] In contrast, endemic Kaposi sarcoma was observed among children in sub-Saharan Africa, which has been attributed to salivary transmission.[4,21] Iatrogenic Kaposi sarcoma results from long-term immunosuppressive therapy[18]; chronic steroid use because of a transplant or autoimmune disease is a risk factor. Epidemic Kaposi sarcoma affects PLWH; therefore, it's also called HIV-associated Kaposi sarcoma.[22] Recently, nonepidemic Kaposi sarcoma, a type that affects HIV-negative MSM was identified.[19] As compared with HIV-negative individuals, people who have this type are younger and have milder severity of disease.[23] This type of Kaposi sarcoma is thought to result from salivary transmission during deep kissing or oral sex.[23]

KSHV is also associated with other malignancies such as multicentric Castleman disease and primary effusion lymphoma that may occur concurrently with Kaposi sarcoma.[24,25] These malignancies mostly affect PLWH and require prompt diagnosis and treatment as patients may become critically ill.[12]

Multicentric Castleman disease is an underdiagnosed relapsing and remitting condition that affects lymph nodes, and causes inflammatory symptoms such as fever, night sweats, weight loss, rashes, anasarca, elevated C-reactive protein, anemia, thrombocytopenia, and hyponatremia.[12,25] Rituximab, a monoclonal antibody that depletes KSHV-infected and cytokine-releasing cells, has been effective in treating multicentric Castleman disease.[25]

KSHV-associated inflammatory cytokine syndrome. Some patients, especially those with extensive Kaposi sarcoma, may present with signs and symptoms very similar to multicentric Castleman disease as a result of cytokine excess, but without a pathological confirmation of multicentric Castleman disease. This condition is called KSHV-associated inflammatory cytokine syndrome (KICS). There is a lack of knowledge about KICS as it was just identified in recent years. However, high mortality (up to 60%) and rapidly progressive Kaposi sarcoma that's difficult to treat have been reported among patients with this condition.[25-28] There is no standard therapy for patients with KICS. However, treatment with rituximab in combination with chemotherapy for Kaposi sarcoma has been described in case reviews.[26,29]

Primary effusion lymphoma is a rare and aggressive form of non-Hodgkin lymphoma. It has a similar clinical presentation to multicentric Castleman disease, and although patients usually develop cavitary effusions, cases of extracavitary involvement (gastrointestinal [GI] tract, lymph node) have been reported.[24] There is no standard treatment for this cancer, but clinical trials are ongoing.

INCIDENCE OF EPIDEMIC KAPOSI SARCOMA

Precise data on the number of epidemic Kaposi sarcoma cases in the United States and other parts of the world aren't available; however, various databases have been used to estimate its incidence. According to an estimate given in one large epidemiological study, the overall incidence of Kaposi sarcoma among PLWH worldwide is 481.54 per 100,000 person-years.[30] The incidence is highest among MSM and occurs even among those who have received cART.[17,30]

In the United States, one study identified 12,549 incident cases between 2000 and 2014 among men 20 to 54 years of age.[31] Between 2008 and 2016, the incidence rate was 116 per 100,000 person-years.[32]

Studies on the incidence of Kaposi sarcoma from 2000 onward are inconsistent by race and geography, with variations in data dependent on their source. Regarding U.S. incidence rates by geographic region, one study found that in 2013, southern states had the highest age-adjusted incidence rate (1.9 per 100,000 person-years) while northeastern states had the lowest (0.6 per 100,000 person-years).[33] Another study ranked Washington, Maine, Georgia, and California as having the highest age-adjusted incidence rates in the country (160 to 200 per 100,000 person-years).[32]

While some studies reported more incident cases among White people than among other races,[32] other studies reported more incident cases among African Americans.[17, 33] Notably, there was an increase in incident cases among younger (20-to-29-year-old) African Americans between 2000 and 2014.[31]

Various studies have documented overall decreases in incidence rates of Kaposi sarcoma over the past several years in the United States and worldwide.[17, 30-32, 34] Despite the overall decline in cases in this country, a steady trend in incident cases among younger African Americans, as noted above, has been reported.[31, 32] Expanded access to cART may have led to the downward trend in new cases, but Kaposi sarcoma continues to affect PLWH, particularly individuals who experience health disparities, such as MSM and young African Americans.

RISK FACTORS

Kaposi sarcoma is more common among individuals with uncontrolled HIV. Having a low $CD4^+$ count substantially increases the risk of developing Kaposi sarcoma[35]; the median $CD4^+$ count at diagnosis is 175 cells/mm^3.[36] (For background on the relationship between $CD4^+$ and HIV, see *$CD4^+$ T-Cell Counts and HIV*.[37]) Also, Kaposi sarcoma most often affects PLWH who have detectable viral loads, including those whose viral load remains high despite being on cART, which may be for various reasons, including drug resistance or inconsistent adherence to treatment.[9] It's important to note that Kaposi sarcoma can still exist among patients with high $CD4^+$ counts and controlled HIV or both, and there are other factors, including age and duration of HIV, associated with a chronic inflammatory response of the immune system to certain stimuli that can lead to the onset of Kaposi sarcoma.[38, 39] Nurses caring for PLWH, regardless of how well their HIV is controlled, should never exclude the likelihood of Kaposi sarcoma when evaluating their signs and symptoms. Nurses and caregivers should alert providers (physicians, physician assistants, NPs) immediately when Kaposi sarcoma is suspected so that it can be diagnosed and treated in a timely manner.

Kaposi sarcoma–immune reconstitution inflammatory syndrome. Patients without discernible Kaposi sarcoma may present with signs and symptoms of the disease following the initiation of cART, while those with preexisting Kaposi sarcoma may report progression of lesions a few weeks after starting cART.[35, 40] This phenomenon is called Kaposi sarcoma–immune reconstitution inflammatory syndrome (KS-IRIS). KS-IRIS results from a hyperinflammatory response to pathogens because of improvement in $CD4^+$ count as the HIV infection is controlled. It affects up to 39% of PLWH and can occur within a few days and up to six months after initiation of cART.[40] In this regard, Kaposi sarcoma is similar to other opportunistic infections.[9, 41] Among patients who develop KS-IRIS, cART should be continued unless the patient becomes unstable.[40, 42]

Patients who develop KS-IRIS may feel that they're deteriorating despite excellent adherence to cART. This may force them to discontinue cART. Nurses should be prepared to educate patients on this syndrome before cART is initiated. Patients who present with worsening lesions after starting cART should be assured that this is expected and will likely subside. However, because KS-IRIS can affect vital organs, patients should be advised to seek medical help if they develop life-threatening symptoms.

Sometimes, the clinical presentation of KS-IRIS and KSHV-associated malignancies may be similar. For example, both can cause fever, night sweats, hypotension, tachycardia, hypoxemia, and an altered mental state. Knowledge of these diagnoses and the rationale for interventions will help nurses who care for critically ill patients to anticipate and prioritize patient needs.

CLINICAL MANIFESTATIONS

Kaposi sarcoma is believed to result from KSHV infection of endothelial cells and typically affects the integumentary system, but it may also involve other

$CD4^+$ T-Cell Counts and HIV

$CD4^+$ T cells ($CD4^+$) are white blood cells that contribute to innate immune responses.[37] HIV infects these cells, resulting in their depletion. Hence, individuals with a low $CD4^+$ cell count are at greater risk for opportunistic infections, including those that cause Kaposi sarcoma. The Centers for Disease Control and Prevention and the World Health Organization classify people living with HIV who have $CD4^+$ counts of less than 200 cells/mm^3 as having AIDS. $CD4^+$ counts are expected to improve when a person with HIV takes combination antiretroviral therapy.

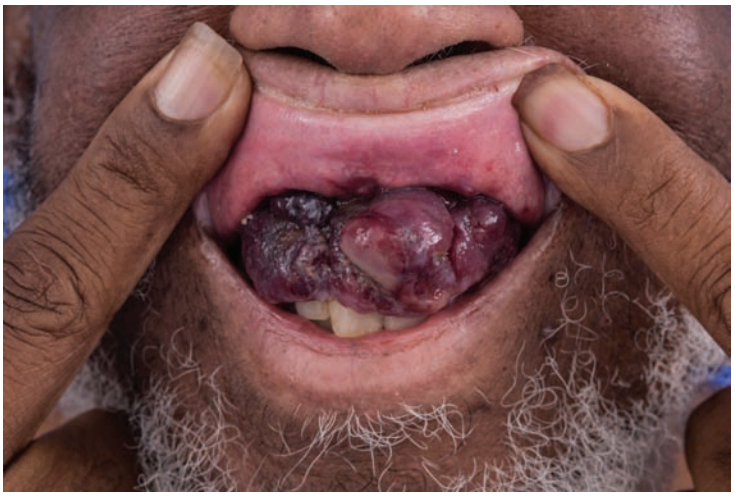

Figure 2. Kaposi sarcoma appears as a large mass on the upper gums and inner lip, almost entirely covering the teeth.

organs such as the lymph nodes, respiratory tract, GI tract, liver, and in some cases, bone.[12,43] Cutaneous lesions are usually purplish, reddish blue, or dark brown macules, nodules, and plaques that become verrucous and hyperkeratotic (see Figure 1).[43] The lesions may be painful or pruritic or both, and patients often have limb swelling. Some lesions may also fungate (become bulky, ulcerated, and infected). Kaposi sarcoma can also present as nodular or flat, hyperpigmented lesions on mucosal or visceral areas (see Figure 2). In our experience, patients with upper airway lesions report nasal or sinus congestion despite having been treated for allergies or presumed infection, while those with oral lesions report dysphagia and hoarse voice.

Patients with GI Kaposi sarcoma may present with nonspecific symptoms such as weight loss, abdominal pain, dyspepsia, diarrhea, nausea, vomiting, and GI bleeding, but some may be asymptomatic.[44,45] Pulmonary Kaposi sarcoma may cause cough, dyspnea, and coarse rales on auscultation.[46,47] Hemorrhagic or chylous (milky or chalky) pleural effusions as well as diffuse alveolar hemorrhage have also been associated with pulmonary Kaposi sarcoma.[48] However, there have been cases of PLWH who have Kaposi sarcoma without known pulmonary Kaposi sarcoma but with chylous pleural effusions.[49,50] The presence of an effusion in a patient with Kaposi sarcoma should prompt further investigation for a possible diagnosis of concurrent primary effusion lymphoma, multicentric Castleman disease, or both.

A thorough physical assessment is fundamental when caring for a patient with epidemic Kaposi sarcoma. A comprehensive examination of the integumentary system should be performed and accurate documentation of the symptoms and history of the illness completed. Nurses should keep in mind that lesions may be hidden in mucous membranes and present differently because of different skin tones. For example, Kaposi sarcoma lesions may be mistaken as benign moles, molluscum contagiosum, or bacillary angiomatosis in patients with darker skin types (see Figure 3). Therefore, Kaposi sarcoma should always be considered as a possibility when new lesions appear.

While some patients with Kaposi sarcoma seek medical consultation because of an unusual skin lesion, others may present with a multitude of nonspecific signs and symptoms, depending on the organ involved. When assessing patients, nurses should note all signs and symptoms, correlate them with physical examination findings, and discuss them in detail with the health care team. All of these pieces of information are relevant in planning diagnostic interventions.

DIAGNOSTIC INTERVENTIONS

The types of diagnostic interventions clinicians may employ depend on the signs and symptoms experienced by the patient. As with any malignancy, pathological confirmation is imperative. Patients with cutaneous lesions should undergo a punch biopsy to establish a diagnosis. This procedure can be done by the primary care provider or patients may be referred to a dermatologist. In cases of visceral involvement, biopsy of GI lesions should be performed during endoscopy. Patients suspected of having pulmonary Kaposi sarcoma should undergo bronchoscopy. In the authors' experience, visual confirmation of lesions in the respiratory tract is sufficient for diagnosis; clinicians generally avoid lung biopsies because of the significant risk of bleeding.

Blood evaluations include an assessment of HIV viral load and $CD4^+$ count. Determining how well the person's HIV is controlled is important because HIV control is fundamental to Kaposi sarcoma management. These laboratory tests will also determine the need for prophylactic antimicrobials, which may be started prior to chemotherapy. Complete blood count and comprehensive metabolic panel are helpful for medication dosing and in planning further diagnostic interventions for patients suspected of having multicentric Castleman disease or primary effusion lymphoma or both.

In patients with extracutaneous signs and symptoms, computed tomography of the head, neck, chest, abdomen, and pelvis may be needed to guide clinicians in whether to seek further interventions, especially when the presence of other KSHV-associated malignancies are suspected. Positron emission tomography, where available, may be useful in identifying target lesions for biopsy, especially in patients with lymph node involvement. For patients with lymphadenopathy, excisional

biopsy of a lymph node is preferred. However, core biopsies may be obtained in patients who cannot undergo this procedure.

MANAGEMENT AND TREATMENT

The goals of treatment are to control the disease, alleviate symptoms, and relieve psychological stress.[51] Multifaceted interventions, including addressing physical, mental, and socioeconomic problems, are necessary to achieve these.

The use of cART is essential in the treatment of HIV-associated Kaposi sarcoma.[11] Some patients with limited or asymptomatic lesions may be managed in the primary care setting by observation after the initiation of cART. Because cART is the backbone of Kaposi sarcoma treatment, it's imperative that all barriers to cART adherence be identified and addressed prior to initiation and throughout the continuum of care.

Nonadherence to cART is one of the greatest challenges in the management of epidemic Kaposi sarcoma, and patients have identified various reasons for this. For example, patients may take cART inconsistently if they are experiencing problems with health care access, such as lack of insurance or high copayments. A study in South Africa found that PLWH who were nonadherent to cART reported reasons such as lack of social support, depression, stress, and inability to afford transportation services to fill medications.[52] A study among PLWH in Western Europe found that difficulty swallowing tablets, GI side effects of cART, a stressful dosing schedule, mental health conditions, and confidentiality concerns were reasons for nonadherence.[53] Most problems affecting adherence can be remedied, although not all can be easily resolved. For example, while cART may be switched to a once-a-day, single-tablet regimen to decrease pill burden and avoid problems with pill ingestion, optimizing mental health, on the other hand, requires a more comprehensive approach.

Further interventions after initiation of cART depend on the extent of lesions and symptoms presented by the patient. For example, limited cutaneous lesions that are asymptomatic or cosmetically acceptable or both may simply be observed following initiation of cART. On the other hand, patients with disseminated or symptomatic Kaposi sarcoma (or both) or whose Kaposi sarcoma progresses after initiation of cART should be referred to oncologists for evaluation and treatment with standard-of-care therapies. As there are limited options for treatment, some of which may not be suited for certain patient populations because of the side or adverse effects, patients are encouraged to participate in clinical trials to explore alternative therapies. Participation in clinical trials is immensely helpful to both patients and clinicians, as there is still a gap in knowledge regarding the natural history and management of Kaposi sarcoma.

Systemic therapy, rather than localized treatment, is recommended in managing advanced Kaposi sarcoma. Intravenous chemotherapy with liposomal doxorubicin or paclitaxel is recommended for patients who require systemic therapy.[54] Liposomal doxorubicin, an anthracycline, has been found to be effective and safe for epidemic Kaposi sarcoma.[55] However, nurses administering this drug should make sure to document the lifetime cumulative dose the patient has received, because liposomal doxorubicin may cause cardiomyopathy, especially among those who received cumulative doses above 550 mg/m^2.[25] Patient assessment should include evaluation of cardiopulmonary-related symptoms and the health care team should consider performing an echocardiogram prior to the first treatment and periodically thereafter. Hand-foot syndrome, or palmar–plantar erythrodysesthesia, is another adverse effect that patients receiving liposomal doxorubicin may report. Hand-foot syndrome causes erythema, swelling, blisters, and paresthesia in the hands and feet.[56] Emollients have been used to treat this, but limited studies have shown that cooling patches and henna are effective treatments.[56, 57] Patients treated with paclitaxel, a taxane, should be monitored for peripheral neuropathy.[58]

Some patients undergoing chemotherapy may feel unwell and present in primary care, ambulatory

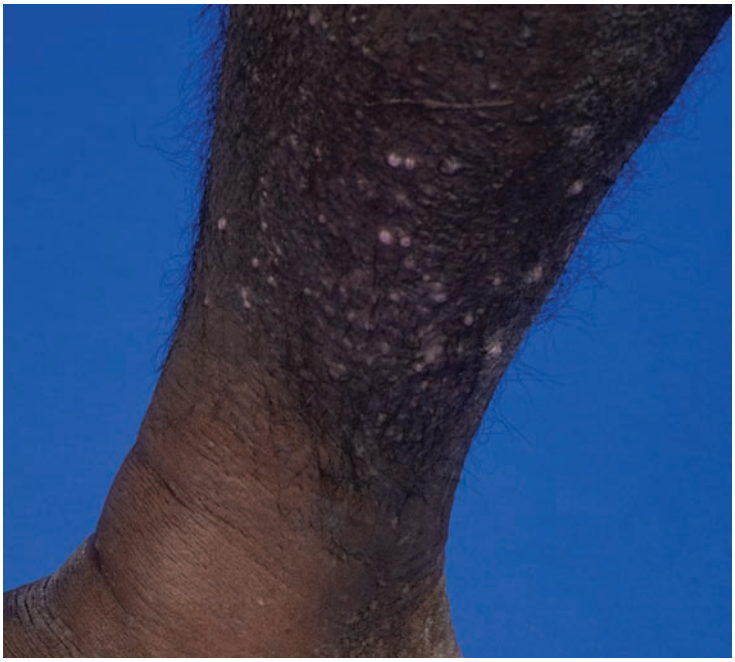

Figure 3. Pearly white, nodular lesions combined with dark, larger, irregularly shaped lesions, which may resemble infectious rashes, on the distal leg.

care, or the ED, or notify their home health nurses about their symptoms. Asking the patient about their treatment history and signs and symptoms is important so they may be triaged appropriately. It's important that nurses working in these areas are cognizant of oncologic emergencies such as febrile neutropenia, and that they facilitate the initiation of appropriate treatment in a timely manner. Coordination with the oncology team should be done promptly to avoid complications.

PLWH can still undergo chemotherapy, even if their HIV is uncontrolled or their $CD4^+$ count is very low. In some cases, patients receiving chemotherapy may be prescribed prophylactic antibiotics or antivirals for infections such as pneumocystis jiroveci pneumonia, mycobacterial avium complex, shingles, or other herpetic infections, depending on $CD4^+$ count and prior history. To promote safety, nurses should alert providers when patients at risk for opportunistic infections aren't taking prophylactic antimicrobials while on chemotherapy.

Recently, the U.S. Food and Drug Administration approved pomalidomide as Kaposi sarcoma treatment for patients without HIV and those with HIV who don't demonstrate improvement after initiation of cART.[59] Pomalidomide is an oral immunomodulatory drug derived from thalidomide that has antiangiogenic and antiproliferative effects.[60,61] Because this drug is teratogenic, nurses should often remind patients to use contraceptive measures, keep the medication in a secure place, and never share the pills.

There is no standard regarding the number of therapy cycles for Kaposi sarcoma, unlike most cancers. So long as the therapy is tolerated, it's continued until the perceived benefits have plateaued. Patients may be treated again when the tumors recur.

Patients who have Kaposi sarcoma should be considered for clinical trials. There are multiple clinical studies aimed at exploring new treatment options and limiting the cumulative toxicities associated with repeated chemotherapy exposure. These are listed at ClinicalTrials.gov.

Other nursing considerations. Caring for PLWH and patients who have Kaposi sarcoma requires a multidisciplinary approach. The health care team should ensure that patients have access to health care services and cART.

Aside from assessing and reinforcing adherence to cART at every visit, nurses should assess a person's socioeconomic status to identify barriers that may prevent them from consistently adhering to cART. Patients who encounter problems with health care access should be referred to social workers or case managers who can link them to Ryan White–funded programs and facilities, which are available throughout the country (see https://findhivcare.hrsa.gov).

These facilities provide primary and specialty care to PLWH. Patients who experience difficulty procuring cART because of high copayments should be helped in applying for financial assistance programs offered by pharmaceutical companies; typically, this assistance is provided by RN case managers, but sometimes social workers, program managers, or other patient care staff members may provide it.

Addressing mental health problems is also crucial because this has been found to influence cART adherence. Nurses are invaluable in detecting mental health needs and should therefore actively assist the health care team in identifying personalized interventions for patients. Aside from its negative effect on cART adherence, mental instability can result from Kaposi sarcoma itself. Debility, pain, and disfigurement can cause depression and isolation. Hence, the patient's response to the disease should be assessed periodically. Pharmacological management of depression or referral to counseling or to a mental health provider or both may be necessary.

Nurses caring for PLWH in both ambulatory and acute care settings play an integral part in maintaining pharmacological safety. Medication reconciliation should be done accurately because there may be multiple drug–drug interactions between chemotherapy and biotherapy drugs, antimicrobials, cARTs, medications for chronic conditions, and over-the-counter products. Collaboration with an infectious disease or oncology pharmacist or both is recommended.

For patient safety, and so patients may be counseled appropriately, it's also important to be aware that certain medications may be contraindicated in patients with Kaposi sarcoma, as they may make the condition worse. For example, topical steroids, widely prescribed for rashes and available over the counter, may worsen Kaposi sarcoma because of their immunosuppressive effect. Another common practice that may harm patients who have Kaposi sarcoma is recommending intranasal steroids when they report nasal or sinus congestion, because incident upper airway Kaposi sarcoma and worsening of existing Kaposi sarcoma have been reported with long-term intranasal steroid use.[62] Patients should be carefully assessed and the risk should be discussed with them if this treatment is deemed necessary.

Because Kaposi sarcoma can be debilitating, nurses should advocate for referral to physical or occupational therapy or both to assist with management of pain and mobility, as well as lymphedema. Lymphedema specialists, though not available everywhere, are helpful in teaching patients exercises and providing custom compression garments to alleviate limb swelling.

Although helpful, mastery of HIV and oncology concepts is not required in the nursing care of patients with epidemic Kaposi sarcoma. More importantly, considerable compassion is warranted as individuals with epidemic Kaposi sarcoma are often from disadvantaged backgrounds or have suffered discrimination because of their condition. Nurses can best help in improving the care outcomes of this population by advocating for patients and providing them with support to help them adhere to interventions.

Overall, it is important for nurses to realize that Kaposi sarcoma still exists in the cART era. Patient-centered care from a multidisciplinary team is imperative to meet the needs of patients with epidemic Kaposi sarcoma. Nurses play a crucial role in addressing the persistent needs and issues, including health disparities and stigma, that affect this population even in the modern age of HIV care. ▼

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