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Mini review

A Sub-Saharan Africa Perspective of HIV-associated Kaposi's Sarcoma Incidence, Prevalence, Clinical Presentations, and Treatment Outcomes

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Abstract

Kaposi's sarcoma is an angio-proliferative malignancy that is considered an AIDS-defining illness when it occurs in HIV-infected individuals. Among the different forms of KS, HIV-associated KS is the most aggressive. HIV-associated KS is among the top malignancies in both males and females in many sub-Saharan African countries in parallel to the HIV epidemic. This mini review focuses on incidence, prevalence, clinical presentations, treatment outcomes, and treatment challenges associated with KS in the sub-Saharan African region.

Keywords: Kaposi's Sarcoma, HIV-associated, Incidence, Prevalence, Clinical Presentations, Treatment Outcomes

Introduction

Kaposi's Sarcoma (KS) is a malignancy of endothelial origin that was first described almost one and a half centuries ago. Kaposi's sarcoma had relatively low incidence and prevalence rates until the early 1980's when the incidence rate and mortality associated with KS dramatically increased in tandem with the HIV pandemic [1]. The etiologic agent associated with all forms of KS is the Kaposi's Sarcoma-associated Herpesvirus (KSHV), which is also known as Human Herpesvirus type 8 (HHV-8) [2]. The KSHV is found in KS lesions of all types of KS.

There are 4 main types of KS, including Classical KS (affects elderly men of Mediterranean origin), Iatrogenic KS (results from medical interventions such as in organ transplant recipients and individuals on chronic immunosuppressive therapy), Endemic KS (EnKS) commonly affects HIV-seronegative males in sub-Saharan Africa, and Epidemic (EpKS) is an AIDS-defining malignancy associated with HIV-induced immunosuppression [3]. Epidemic KS is by far the most common and most aggressive form of KS.

Incidence and Prevalence of KS in Sub-Saharan Africa

According to the WHO GLOBOCAN estimates in 2018, KS is among the top 10 malignancies in both males and females on the African continent (GLOBOCAN, 2018). Kaposi's sarcoma is the most common malignancy among in both males and females in some SSA countries including Botswana and Mozambique (GLOBOCAN, 2018). It is the second most common malignancy among males and females in some sub-Saharan African countries including Malawi, Namibia, Uganda, and Zambia, while it is the most common malignancy among males in these countries (GLOBOCAN, 2018).

A study in South Africa reported a high KS incidence of 1,682/100,000 person-years among HIV-infected individuals enrolled in anti-retroviral therapy (ART) programs [4]. In an East African study, KS incidence was found to be 334/100,000 person-years among individuals on ART [5]. After an initial 20-fold increase in incidence of KS in SSA countries after the onset of the HIV/AIDS

pandemic [6], there has been an observed decline in this incidence rate in many of these SSA countries after the introduction and wide availability of ART [7]. However, despite this decline, KS burden remains significantly high in SSA countries in the ART era [8].

Clinical presentations of KS in Sub-Saharan Africa

Kaposi's sarcoma usually develops in the skin, and sometimes affects visceral organs including the lower respiratory tract and gastrointestinal tract. It begins as small flat lesions that may increase in number and size, and eventually become elevated. The lesions are often asymptomatic and do not create discomfort to the patient until the disease disseminates and becomes life-threatening. Untreated advanced HIV disease upon initiation of ART is often associated with rapid progression of EpKS in a short period of time, known as immune reconstitution inflammatory syndrome (IRIS) [9]. Most EpKS patients in sub-Saharan Africa usually present late, with advanced disease [10]. This late presentation is usually in form of disseminated cutaneous disease with or without pulmonary involvement [11].

Outcomes of KS Treatment

Treatment outcomes for EpKS are dependent on stage of presentation and underlying co-morbidities. Treatment of EpKS is often ART alone for early stage limited cutaneous disease, and ART plus cytotoxic cancer chemotherapy for advanced disease. A significant proportion (almost 50%) of EpKS patients do not achieve complete disease remission on the commonly available first-line regimen (Doxorubicin, Bleomycin, and Vincristine) [12]. In addition, almost half of the EpKS patients with complete remission on first-line chemotherapy often have recurrence of KS lesions within 6 months of completing treatment [12]. This KS recurrence is met with the challenge of unavailability or shortages of second line regimens, making the management of EpKS very difficult as there is a lifetime cumulative dose limitation of most first-line agents due to life-threatening adverse events. Furthermore, among ART-treated EpKS patients with limited cutaneous disease, some of them have a risk of KS disease progression associated with the reconstitution of the immune system [13].

A recent study found that about 48 percent of admitted EpKS patients had advanced disease with disseminated cutaneous lesions, and some having visceral involvement [10]. The mortality rate among all admitted patients in this study was high, at 20%. After adjusting for the factors associated with mortality of these patients, signs and symptoms of sepsis were an independent predictor of mortality [10]. Other studies have also reported that individuals with HIV-associated KS (EpKS) are more likely to be lost to follow up than individuals with non-HIV-related KS [14].

Conclusion

AIDS-associated KS (EpKS) is a serious public health problem is SSA. It is among the top malignancies in most SSA countries. The main challenges associated with EpKS include its high incidence rate due to the high HIV disease burden in SSA, the late disease presentation which is associated with poor treatment outcomes, and the high recurrence rates after an initial complete remission.

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Conflict of Interest

The authors have no conflict of interest to declare.

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