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Cancer prevention in patients with human immunodeficiency virus infection

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Abstract

Cancer is a leading cause of death in patients with human immunodeficiency virus (HIV) infection. With the advent of antiretroviral treatment, the risk of AIDS-defining cancers declined but the ageing of this population resulted in the emergence of other common cancers, particularly lung and hepatocellular cancer. Accordingly, screening programs similar to the general population should be implemented in patients with HIV infection. Vaccination against common oncogenic viruses is also essential. However, rates of cancer screening and vaccination against HPV and HBV are considerably low in this population, highlighting a pressing need to educate patients and healthcare professionals about the importance of cancer preventive measures in these vulnerable patients.

Key words: Antiretroviral treatment; Prevention; Human immunodeficiency virus infection; Cancer; Vaccination

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Core tip: Cancer is a leading cause of death in patients with human immunodeficiency virus (HIV) infection. With the advent of antiretroviral treatment, the risk of AIDS-defining cancers declined but the ageing of this population resulted in the emergence of other common cancers, particularly lung and hepatocellular cancer. Accordingly, screening programs similar to the general population should be implemented in patients with HIV infection. Vaccination against common oncogenic viruses is also essential.

Valanikas E, Dinas K, Tziomalos K. Cancer prevention in patients with human immunodeficiency virus infection. *World J*

Cancer is a leading cause of death in patients with human immunodeficiency virus (HIV) infection^[1,2]. In recent decades, overall mortality declined in this population in industrialized countries but the percentage of deaths due to non-AIDS related cancer increased and currently represent almost one fourth of all deaths^[1,2]. Moreover, HIV infection is associated with increased incidence of several cancers, including Kaposi's sarcoma, certain types of aggressive B-cell lymphomas and invasive cervical cancer, which are classified as AIDS-defining cancers^[3-5]. However, several non-AIDS related cancers, including lung and hepatocellular cancer, are also observed more frequently in patients with HIV infection^[3,6]. Therefore, the prevention of cancer is of paramount importance in this population.

The introduction of antiretroviral treatment (ART) resulted in substantial reductions in the incidence of AIDS-defining cancers^[3-5]. Moreover, immunosuppression also increases the risk of non-AIDS-defining cancers in this population^[7,8]. Therefore, timely implementation of ART is essential for cancer prevention in patients with HIV infection. However, the cost/health benefit ratio of early implementation of ART and persistent suppression of HIV replication should also be considered, particularly in resource-poor settings.

It has been reported that almost 40% of cancers that affect patients with HIV infection are due to oncogenic virus, specifically hepatitis B and C virus infection-related hepatocellular carcinoma (HCC) and human papillomavirus (HPV) infection-related cervical, vulvar, penile, anal, oral and pharyngeal cancer^[8,9]. Accordingly, vaccination against hepatitis B is recommended in all seronegative patients with HIV infection and repeat doses should be administered until anti-HBs titers \geq 10-100 IU/mL are achieved^[10]. Double doses might be indicated in patients with low CD4 count and high HIV viral load^[10]. Vaccination against HPV is also recommended in patients with HIV infection < 26-year-old or < 40-year-old in men who have sex with men (MSM)^[10]. Three doses of the 9-valent HPV vaccine should be used where available^[10].

Lung cancer is more frequent in patients with HIV infection and is a leading cause of death in this population^[3,6]. The higher prevalence of smoking in patients with HIV infection might partly contribute to this association^[11,12]. Therefore, current guidelines state that these patients should be made aware of the detrimental effects of smoking on health and smokers should be informed about the benefits of smoking cessation^[10]. For those willing to quit smoking, pharmacotherapy (including nicotine replacement therapy, varenicline and bupropion), cognitive behavioral counseling and/

or motivational strategies can be employed to help quitting^[10]. On the other hand, computed tomography screening appears to have low yield in patients with HIV infection, probably due to the young age of most of these patients^[13].

Cancer screening recommendations in patients with HIV infection are similar to the general population, since there are no studies that specifically evaluated the benefits and harms of these strategies in this population^[10]. Mammography is recommended every 1-3 years in women 50-70-year-old and measurement of prostate specific antigen is recommended every 2-4 years in men > 50 years with life expectancy > 10 years^[10]. Annual faecal occult blood test, sigmoidoscopy every 5 years or colonoscopy every 10 years are recommended in subjects > 50 years with life expectancy > 10 years^[10]. In patients with cirrhosis and in those with HBV co-infection and either a history of elevated transaminases or risk factors for HCC (family history of HCC, Asians, Africans), abdominal ultrasound and measurement of alpha-fetoprotein levels are recommended every 6 mo to enable the early diagnosis of HCC^[10]. Regarding AIDS-defining cancers, liquid-based cervical cytology test every 1-3 years is recommended in women > 21 years or within 1 year after sexual debut^[10]. Digital rectal examination with or without anal cytology is also recommended in MSM and patients with HPV-associated dysplasia^[10]. Finally, careful inspection of the skin should be performed regularly to detect cancers such as Kaposi's sarcoma, basal cell carcinoma and malignant melanoma^[10].

In conclusion, cancer is a frequent cause of death in patients with HIV infection. With the advent of ART, the risk of AIDS-defining cancers declined but the ageing of this population resulted in the emergence of other common cancers, particularly lung cancer and HCC. Accordingly, screening programs similar to the general population should be implemented in patients with HIV infection. Vaccination against common oncogenic viruses is also essential. In addition, primary prevention of cancer by implementing educational programs stressing the importance of healthy lifestyle are equally important in patients with HIV infection. However, rates of cancer screening and vaccination against HPV and HBV are considerably low in this population^[14,15], highlighting a pressing need to educate patients and healthcare professionals about the importance of cancer preventive measures in these vulnerable patients.

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