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REVIEW

Malignancies and infection due to the human immunodeficiency virus. Are these emerging diseases?

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KEYWORDS

Undiagnosed AIDS tumors; Malignancies and HIV; Mortality **Abstract** Since the start of the human immunodeficiency virus (HIV) epidemic, tumor disease among patients has been significant. The collection of malignancies can be divided primarily into 2 groups: those associated with HIV (all of which are related to viral diseases) and those not associated with HIV (only some of which are associated with viral diseases).

The origin of these malignancies is multifactorial, and the main causes that have led to an increase in tumor disease are immunosuppression, coinfection with oncogenic viruses and life prolongation secondary to the use of antiretroviral therapy.

Establishing the general characteristics of the undiagnosed AIDS tumors is difficult, mainly because they are a highly heterogeneous group formed by malignancies of a diverse nature. The treatments do not differ from those used in the general population, although the management can be more difficult due to the late diagnosis, drug interactions and associated comorbidities. © 2017 Elsevier España, S.L.U. and Sociedad Española de Medicina Interna (SEMI). All rights reserved.

PALABRAS CLAVE

Tumores no diagnósticos de sida; Neoplasias y VIH; Mortalidad Neoplasias e infección por el virus de la inmunodeficiencia humana: ¿enfermedades emergentes?

Resumen Desde los inicios de la epidemia del virus de la inmunodeficiencia humana (VIH), la patología tumoral ha sido muy importante. El conjunto de las neoplasias se puede dividir básicamente en 2 grupos: las asociadas al VIH, todas ellas relacionadas con enfermedades virales, y las no asociadas al VIH, entre las que algunas están asociadas a enfermedades virales y otras no.

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El origen es multifactorial y las principales causas que han llevado a que se produzca un aumento de la patología tumoral son la inmunodepresión, la coinfección con virus oncogénicos y la prolongación de la vida secundaria al uso de tratamiento antirretroviral.

Establecer las características generales de los tumores no diagnósticos de sida es difícil fundamentalmente porque son un grupo muy heterogéneo formado por neoplasias de diversa índole. Los tratamientos no difieren de los empleados en la población general, aunque el manejo puede ser más difícil por el diagnóstico tardío, las interacciones medicamentosas y las comorbilidades asociadas.

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Background

In recent years, non-AIDS related diseases (NARDs) have increased progressively and are one of the main causes of morbidity and mortality in patients infected by the human immunodeficiency virus (HIV). These processes include cardiovascular and kidney diseases, osteoporosis, neurocognitive impairment and cancer, especially non-AIDS-defining cancers (NADCs).¹⁻⁶ A recent publication showed how AIDS-related mortality has declined over time while NARD-related mortality has increased, with NADCs constituting the main cause of death.⁷

The set of malignancies presented by patients with HIV is divided into 2 groups: HIV-related and non-HIV-related (some of which are related to other viral diseases) (Fig. 1).8-16 The HIV-related malignancies include 1) Kaposi's sarcoma, related to the human herpesvirus type 8 virus (HHV-8); 2) non-Hodgkin's lymphomas, related to the Epstein Barr virus (EBV); and 3) cervical carcinoma, related to the human papilloma virus (HPV). The tumor diseases independent of HIV infection and related to viral diseases include Hodgkin's lymphoma (HL), related to EBV; anal canal carcinoma, related to HPV; and hepatocarcinoma, associated with the hepatitis c (HCV) and B (HBV) viruses. 17 Shepherd et al. 18 proposed that the classification of malignancies be based on their relationship (or lack thereof) with viral infections. Tumor diseases without viral involvement are represented mainly by lung carcinoma (Fig. 1).

We recently reviewed the tumor diseases in 4994 patients with HIV treated at our center from 1986 to 2016. At least 1 tumor was diagnosed in 416 patients (8.3%). ^{19,20} In our experience, as the use of antiretroviral treatment (ART) has spread, the incidence of AIDS-defining cancers (ADCs) has decreased, while the incidence of NADCs has increased. ^{19,20}

Etiopathogenesis

The origin of tumor diseases in patients with HIV infection is multifactorial. The most important factors are the HIV itself, immunosuppression, co-infection with oncogenic viruses and increased survival due to the use of ART.^{21–24} HIV is a necessary but not sufficient condition, because it is not an oncogenic virus. However, the presence of HIV creates a

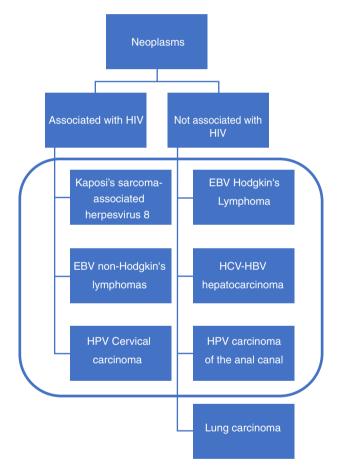


Figure 1 Classification of the main malignancies presented by patients with human immunodeficiency virus infection. Malignancies related to viral infections can be seen in the inset. *Abbreviations*: EBV, Epstein Barr virus; HCV, hepatitis C virus; HBV, hepatitis B virus; HIV, human immunodeficiency virus; HPV, human papilloma virus.

condition of chronic immunosuppression, which is related to ADCs. 21,25

Immune impairment and uncontrolled HIV viremia increase the risk of developing malignancies, such that an undetectable viral load and CD4+ lymphocyte counts

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