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HIV: Current Research

Opinion Article

The Role of Antineoplastic Drugs in Control of Human Immune Deficiency Virus (HIV)

Risa Josh*

Department of Pediatrics, David Geffen School of Medicine, University of California Los Angeles, Los Angeles, California

DESCRIPTION

The prognosis of individuals with HIV has significantly improved as a result of Anti-Retroviral Therapy (ART). Nonetheless, the overall incidence of cancer among HIV patients has increased due to reductions in overall mortality and aging of HIV-infected populations. among addition, a number of Non-AIDS-Defining Malignancies (NADMs) and AIDS-Defining Malignancies (ADMs), such as Kaposi sarcoma, Non-Hodgkin Lymphoma (NHL), and invasive cervical carcinoma, are more common among individuals living with HIV. Currently, 33% of HIV-related deaths are caused by cancer.

HIV-positive patients can successfully undergo even intensive chemotherapy protocols, according to certain studies, and their prognosis for Burkitt lymphoma, diffuse large B-cell lymphoma, and Hodgkin lymphoma is comparable to that of HIV-negative patients undergoing the same chemotherapy regimens. Regretfully, information about the kind of ART and virologic result has been overlooked in favor of oncologic factors in the majority of research examining concurrent ART and chemotherapy. Nonetheless, certain prior research on concurrent therapy offers information that can help with ART choices.

To combat resistance, current recommended ART regimens usually include three active medications. Combinations of two Nucleoside Reverse Transcriptase Inhibitors (NRTIs) plus a non-Nucleoside Reverse Transcriptase Inhibitor (NNRTI), a Protease Inhibitor (PI) enhanced with ritonavir, or an Integrase Strand Transfer Inhibitor (INSTI) is among the first regimens in resource-rich nations. The possibility that interactions mediated by drug metabolizing enzymes or transporters could result in altered drug exposure is a key issue associated with the administration of several antiretroviral. Since renal clearance is the primary method of disposal for NRTIs, they may become targets of transporter-mediated interactions.

Because PIs and NNRTIs are extensively metabolized by the *CYP450* system, they may be the targets or offenders of enzyme-mediated interactions. It is impossible to generalize the INSTI class. There won't likely be any significant interactions with raltegravir because it is only metabolized by the phase II enzyme UDP Glucuronosyl Transferase (UGT) 1A1. Because *CYP3A* and UGTs metabolize elevategravir and dolutegravir, they may interact with other medications. Only a boosted combo pill with the powerful *CYP3A4* inhibitor cobicistat contains elevategravir. Since it is a substrate of *CYP3A* and *ABCB1*, the *CCR5* antagonist maraviroc is susceptible to drug interactions, albeit it is unlikely to be the cause as it has no effect on transport or metabolism.

Enfuvirtide, a fusion inhibitor, is hydrolyzed; thus far, no medication interactions have been observed with this treatment. Guidelines for cancer treatment in ART-using patients are required as HIV patients live longer and develop cancers that do not match the criteria for AIDS.

The timing of a cancer diagnosis with an HIV diagnosis may influence treatment choices. All efforts should be made to ensure that patients receiving Anti-Retroviral Therapy (ART) have appropriate exposure to the drug in the event that they are diagnosed with a curable malignancy. This will raise the likelihood of a successful outcome while also reducing the risk of toxicity.

Anticancer medication should be started before beginning an ART regimen with low potential for pharmacokinetic and pharmacodynamic interactions if a patient has been co-diagnosed with HIV and a cancer. This will ensure tolerability. Lastly, factors like the degree of overlapping toxicity profiles, which go beyond variations in drug exposure, might be taken into account.

The morbidity and mortality of AIDS-related sequelae in patients on Highly Active Antiretroviral Therapy (HAART) have significantly decreased nonetheless, the prevalence of both AIDS-defining and non-AIDS-defining malignancies has increased. The management of HAART medication in connection with cytotoxic chemotherapy or targeted anti-tumor medicines is covered in this review. We will discuss how to mix antiretroviral and antineoplastic medicines in HIV patients on HAART therapy, as well as potential pharmacological interactions between antiretroviral and antineoplastic therapies.

Correspondence to: Risa Josh, Department of Pediatrics, David Geffen School of Medicine, University of California Los Angeles, Los Angeles, California, E-mail: rj.joshr@med.edu

Received: 27-Nov-2023, Manuscript No. HICR-23-29284; **Editor assigned:** 30-Nov-2023, PreQC No. HICR-23-29284 (PQ); **Reviewed:** 14-Dec-2023, QC No. HICR-23-29284; **Revised:** 21-Dec-2023, Manuscript No. HICR-23-29284 (R); **Published:** 28-Dec-2023, DOI: 10.35248/2572-0805.23.8.244

Citation: Josh R (2023) The Role of Antineoplastic Drugs in Control of Human Immune Deficiency Virus (HIV). HIV Curr Res. 8:244.