

Potential Effects of Combined Antiretroviral Therapy in HIV and TB Positive Patients

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DESCRIPTION

Tuberculosis (TB) and Human Immunodeficiency Virus/Acquired Immuno Deficiency Syndrome (HIV/AIDS) are the leading causes of infectious disease. TB illness is one of the top causes of death among HIV patients worldwide. People with HIV who simultaneously have latent TB infection or TB illness can be adequately treated. The first priority is to ensure that those living with HIV gets tested for tuberculosis. HIV weakens the immune system, increasing the risk of TB in HIV-positive people. HIV/TB co-infection is the combination of HIV and TB infection. Those with HIV have a higher risk of developing TB disease from an untreated latent TB infection compared to those without HIV. When it is left untreated, latent tuberculosis infection can swiftly turn into TB illness in HIV-positive individuals since their immune systems are already compromised. Additionally, TB disease has a fatal prognosis if untreated. People with HIV/TB co-infection should be treated for both infections however, when to begin therapy and what medications to take depend on the individual's circumstances. Taking certain HIV and tuberculosis medications at once can raise the risk of drug-drug interactions and unwanted effects.

Someone with untreated latent TB infection and HIV infection is considerably more likely to develop TB disease than someone who does not have HIV. TB drugs are used to treat TB disease and to prevent latent TB infection from progressing to disease. The type of TB drug used and the duration of treatment are determined by whether a person has latent TB infection or TB illness. It has been said that the co-infection of *Mycobacterium tuberculosis* (MTB) and the Human Immunodeficiency Virus (HIV) is the epitome of a "syndemic," which is defined as the coexistence of two illnesses that interact synergistically and place an undue burden on society. As a direct result of virus-associated immune suppression, HIV-infected people are more susceptible to the TB disease. Continuous exposure to infectious TB cases and the continual reactivation of latent TB infections are contributing factors to the problem. Theoretically, effective treatment of either TB or HIV illnesses should result in a decrease in transmission of the implicated bacteria in the absence

of non-human reservoirs. Although there is effective therapy for both disorders, public health control of TB/HIV co-infections is still a far-off aim. Tuberculosis Preventive Treatment (TPT) and Antiretroviral Treatment (ART) are both effective therapies for preventing active TB illness in a person with a hypersomnia.

Antiretroviral therapy has been found to reduce the probability of active tuberculosis in a person with a hypersomnia by 67% across a variety of clinical trials.

Some of the key interactions include

Isoniazid: Isoniazid with antiretroviral medicines have little drug interactions. Any antiretroviral regimen can be administered with isoniazid, and no dose modifications are required.

Rifampin: It should not be used in anyone who are taking any of the following antiretroviral medications doravirine, etravirine, rilpivirine, bicitgravir, cabotegravir, elvitegravir-cobicistat, or any protease inhibitor. When taken in conjunction with rifampin, increase the dosage to 50 mg twice daily. When used with rifampin, the dose of raltegravir should be increased to 800 mg twice daily. Rifapentine antiretroviral medication interactions are influenced by whether rifapentine is administered weekly or daily.

Prevention

Control of infection: When treating individuals with infectious tuberculosis, airborne respiratory precautions must be implemented. Every health care facility that provides services to people with suspected or confirmed tuberculosis disease should have an infection control plan in place that includes administrative and environmental controls, as well as a respiratory protection program, as outlined in the guidelines for preventing the transmission of *Mycobacterium tuberculosis* in health-care settings. Procedures that may generate infectious aerosols, such as sputum induction and aerosolized pentamidine, must be carried out with proper infection control precautions, such as the use of a particle mask and a room with enough ventilation. Extra-pulmonary tuberculosis is not generally contagious and does not constitute a disease.

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