

Subject: HIV-TB Co-Infections. Clinical Presentations, and Treatment Preferences

HIV-TB Co-Infections. Clinical Presentations, and Management of HIV/AIDS in Adults and Children

- Tuberculosis treatment in persons with HIV is generally the same as in HIV-negative patients
- HB and HIV interaction is bidirectional with catastrophic consequences
- Challenges include timing ART, drug-drug interactions, Immune restoration inflammatory syndrome and pill burden
- Timing of ART for adults and children: survival is higher if treatment for both is integrated early
 - ART should start within two weeks of TB treatment
 - If meningitis is suspected, delay ART for 4 weeks
 - Types of ART options are limited by TB therapy, preferred ART is rifampin-containing

HIV-TB incidence and common presentations in Pakistan

- Globally, people living with HIV are 26 times more likely to develop TB disease than those who are HIV-negative
- Incidence of HIV+ TB cases was 2.4 per 100,000 population in Pakistan (about 5100 incident cases) during 2019
- Importantly, in the absence of appropriate care and prevention, a large proportion of people living with HIV die from undiagnosed tuberculosis.
- There were 1900 HIV-associated TB deaths in Pakistan during 2019
- Challenges
 - The HIV epidemic continues to fuel the tuberculosis epidemic
 - Nearly 50% of all TB patients did not know their HIV status globally (2012)
 - Only a little over 50% of those with associated HIV infection received antiretroviral treatment in 2012.

Treating TB in HIV co-infected patients, treatment options, and medical availability in Pakistan

- In 2017, TB caused one out three deaths among people living with HIV. TB is the most common opportunistic infection among people with HIV. HIV increases the risk of dying of TB by 3 times
- Pathogenesis of TB and HIV co infection
 - Risk of TB increases by 2-5 fold in early HIV infection and more than 20 fold in advanced HIV infection
 - The depletion of CD4+ T cells that is associated with HIV-1 infection is thought to have a major role in the increased risk of TB in individuals infected with HIV-1.
 - ARV can exacerbate the immune response to Mycobacterium tuberculosis resulting in immune reconstitution syndrome Co infection with Mycobacterium tuberculosis also leads to HIV progression to AIDS earlier
- Why TB is an important co infection
 - People living with HIV who have a low CD4 count are at a much higher risk of falling ill from TB infection than HIV negative people.
 - It is important to offer both HIV testing to TB patients and TB diagnosis in HIV patients. Early detection and effective treatment are essential to preventing TB-associated deaths.
 - WHO and UNAIDS advise countries to ensure that HIV programs integrate regular TB screening, preventive therapy and early treatment.
- Treatment of TB and HIV co infection
 - During pregnancy, regardless of CD4 count: Initiate ART as early as feasible, for treatment of the person with HIV and to prevent HIV transmission to the infant.

- With TB meningitis: When initiating ART early, patients should be closely monitored, as high rates of adverse events and deaths have been reported in a randomized trial .