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COPD 2019- Diagnostic features of HIV-associated lung disorders - Mohammad Reza Pourshafie, Ministry of Health Azerbaijan Republic, Azerbaijan

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The fight against HIV is one of the targets in our century. Thus, among the HIV-infected patients, one of the most dangerous and outstanding with its complications is those with lung pathologies. According clinical staging of the disease, such patients may present Tuberculosis, Pneumocystis jirovecii, Cytomegaloviruses, Candidiasis, Toxoplasmosis etc. The research by scientific research institute of lung disease was carried out among the inpatient individuals in amount of 48.37 (77%) of them were presented with tuberculosis and 11 (23%) with Interstitial Lung Disease (ILD). Studies were presented on HIV-positive patients who were divided by the randomization techniques. Among 37 patients with tuberculosis, 29 (78%) had AFB (acid fast bacillius) with Gexpert, HAIN methods, 6 (22%) were diagnosed by imaging methods (HRCT, chest X-ray) and serum ADA level. According to previous studies, there were no correlations between serum ADA level elevations at HIV-positive patients (p value 0.05). Among 11 patients presented with ILD Pneumocystis jirovecii were detected at 5 (45%), 3 (27.5%) were presented with daily mortality, 3 took a Co-Trimaxozole therapy diagnosed by imaging methods. Clinical effectiveness was approved by the presence of pneumocystis origin. At the second stage of the study was found a correlation between different Cd4 cell count and imaging rating. Thus, among total number of 119 HIV-positive patients, 38 (32%) had infiltration zones, 53 (44%) had a destruction, 20 (17%) dissemination, 8 (7%) mediastinal lymphadenopathy. Statistic results p value 0.000424, thus there is direct correlation.

The range of HIV-related lung diseases is wide, and many HIV-related infectious and non-infectious complications are identified. Since HIV infection Pulmonary Complications more than 15 years ago, the life expectancy of antiretroviral therapy (ART) increased, the existence and incidence of lung complications were not fully characterized. In the current age of ART our knowledge of the global epidemiology of these illnesses is minimal and mechanisms are not completely understood for rises in noninfectious conditions. This article addresses our existing awareness about the effects of HIV on pulmonary health and pulmonary growth.

Latest global figures show that about 33 million people live with HIV (1). In low- and middle-income countries, a disproportionate number of people live with the highest prevalence of HIV in subsaharan Africa recorded (1). Within these resource-limited areas, many people with HIV suffer poorly defined severe or fatal complications of their lung. HIV-related lungs are also common causes of disease and death in developed countries, where HIV infection has become a chronic disease because of the increased availability and affordability to selective antiretroviral therapy (ART). Among ART people, more and more people survive and develop co-morbid diseases that affect mortality considerably, with serious 'non-AIDS' diseases accounting for the majority of deaths in recent studies, in proportion (2-6). This paper discusses the existing awareness of the impact of HIV on lung health, highlights ongoing work in this area and presents the following papers in this issue of the American Thoracik Society proceedings, each of which focusses on common pulmonary and essential complications of HIV infection.

HIV infected individuals undergo a gradual but persistent loss of host immunity from infection, leading to immune deregulation, dysfunction and deficiency syndrome (Figure 1). HIV leads to the massive loss of CD4 + effector memory cells from mucosal tissue (7) after initial infection. After this, the effector memory is associated with HIV. The generalized immune activation occurs during the chronic process of HIV infection, and gradually a steady decline in the naive and memory of the T-cell pool contributes to systemic CD4 + lymphocyte depletion (7, 8). T-cells are unstable and they also mount abnormal host reactions to T-cell antigenes.

Furthermore, B cell dysfunction results in polyclones, hypergammaglobulinemia and the lack of specific

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antimicrobial responses. Combined, these factors lead to immune dysfunctions, deregulation and degradation of CD4 + lymphocytes with a significant increase in chance infections and other complications during HIV infection. While in those who do not use ART the most abnormalities are immunological, recent data show that while ART restores immune function, inflammation and immunodeficiency that persist, particularly in the case of patients initiating ART in lower lymphocyte numbers of CD4 +.

A host defense in the lung, and respiratory tract, that contributes to a greater risk for lung complications is caused by HIV infection in several lines. These changes include defensins in respiratory secretions and defects in the mucociliar structure and soluble protection molécules. In the lung parenchyma, the pathogens can be affected by innate and adaptive immune responses. For example, HIV-infected alveolar macrophages have shown deficiency in pathogen detection. HIV also contributes to chronic stimulation and inflammatory cell activation in the alveolar space.

HIV-associated lung complications have a wide scope, considering both infectious and non-infectious complications. Such risks include AIDS-defining diseases and related HIV-related conditions (e.g. pneumonia[PCP], tuberculosis[TB] or bacterial pneumonia), non-AIDS defining illnesses, but more severe in patients with HIV infection (e.g., lung disease, pulmonary arterial hypertension and chronic obstructive pulmonary diseases) and conditions associated with HIV-related disorder (HIV).

There are myriad HIV-related pulmonary disorders, from acute infections to chronic non-communicable diseases. In the age of widespread antiretroviral therapy the epidemiology of these diseases has changed significantly. Evaluating the patient diagnosed with HIV involves determining the severity of the disease and carrying out a detailed but effective definitive diagnosis involving a variety of etiologies at the same time. Substance usage, sexual behaviour, domiciliary and prison status provide the demographic data, including travel and geographic location, important clues to a diagnosis.

Many laboratory adjunctive studies may indicate or exclude different diagnoses. Testing pulmonary function (PFT) can help classify many chronic HIV-accelerated non-infected diseases. Chest x-ray and CT scans allow for classifying diseases by pattern of pathognomonic illustration, but there are many infectious disorders, with lower CD4 numbers, in particular. Ultimately, it is also important to make certain diagnoses for sputum, bronchoscopy or lung tissue.

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