

Clinical evaluation of the risk factors for pulmonary tuberculosis and the acquired immunodeficiency syndrome

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ABSTRACT

To investigate the risk factors for Acquired Immunodeficiency Syndrome (AIDS) complicated by Pulmonary Tuberculosis (PTB) in order to provide a reference for better treatment and prevention. A retrospective analysis of 939 AIDS patients admitted to our hospital between January 2016 and January 2021 was divided into two groups: AIDS combined PTB (group A, 68 cases) and AIDS (group B, 871

cases). The two groups' clinical and laboratory data were analysed and compared. Gender, residence, occupation, annual income, educational level, marital status, drinking history, diabetes history, BCG vaccination history, homosexuality, and whether the two groups had multiple sexual partners did not differ significantly over time.

Key Words: *Acquired immune deficiency syndrome, Tuberculosis, Risk factors*

INTRODUCTION

Human Immunodeficiency Virus (HIV) and Tuberculosis (TB) are both deadly infectious diseases that rank among the top ten causes of death worldwide. TB, the most common cause of HIV morbidity and mortality, aggravates the progression of Acquired Immunodeficiency Syndrome (AIDS) by increasing the level of HIV replication and transmission. Furthermore, HIV infection significantly increases the risk of developing tuberculosis because it disrupts the immune response and reduces the host's ability to resist *M. tuberculosis* infection. According to the 2020 Global Tuberculosis Control Report, there were approximately 10 million TB patients worldwide in 2019, with 1.2 million TB deaths among HIV-negative people and 208,000 deaths from TB/HIV. TB coinfection with HIV increases TB mortality while decreasing cure and treatment success rates. Furthermore, TB was the "number one killer" of HIV-infected patients, and approximately 30%-40% of HIV-infected patients died from TB. As a result, the risk factors, as well as the treatment and prevention of HIV/TB infection, should receive adequate attention. The most common type of Tuberculosis (TB) is Pulmonary Tuberculosis (PTB). This study looked back at data from patients with AIDS alone and AIDS combined with PTB who were admitted to Shijiazhuang's Fifth Hospital between 2016-1 and 2021-01, looking for risk factors that led to AIDS/PTB and providing a reference for better prevention and treatment. From 2016-01 to 2021-01, the

clinical and imaging data of AIDS alone and AIDS combined with PTB in Shijiazhuang Fifth Hospital were retrospectively analysed, totalling 939 cases. Criteria for inclusion: The diagnosis of PTB and the diagnosis of AIDS met the diagnostic and treatment criteria. Exclusion criteria include: co-infection with immunodeficiency diseases other than AIDS; co-infection with respiratory system infections other than PTB; serious underlying diseases such as heart failure, liver and kidney failure, and so on; mental illness or impaired consciousness; and patients with malignant tumours. Before data collection and analysis, the Shijiazhuang Fifth Hospital's institutional review board approved the study design. All patients agreed to the trial protocol and provided informed consent. A case-control study was used in this study, and patients were divided into AIDS/PTB (group A, 68 cases) and AIDS (group B, 871 cases) groups based on whether or not PTB was combined. The clinical data and laboratory test results were analysed and compared between the two groups. Gender (male or female), residence (rural or urban), occupation (stable occupation or freelance/unemployed), annual income (30,000 RMB or less), marital status (married or unmarried /divorced), smoking history (yes or no), drinking history (yes or no), diabetes (yes or no), history of BCG vaccination (yes or no), homosexuality (yes or no), multiple sexes partner (yes or no), number of CD4⁺ cells (200 cells). There are also numerous reports on factors associated with AIDS complicated by PTB, such as CD4⁺ cell count, tuberculosis type, smoking, BMI, place of residence, compliance, and educational

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Chen

level. This study discovered that the AIDS/PTB and AIDS groups were not significantly different in terms of gender, residence, occupation, annual income, educational level, marital status, drinking history, diabetes history, BCG vaccination history, homosexuality, and the presence of multiple sexual partners at the same time. Differences in smoking history and CD4⁺ cell count, on the other hand, were significant and statistically significant.

CONCLUSION

In conclusion, this study discovered that a history of smoking and a CD4⁺ cell count of 200 cells/mm³ were risk factors for AIDS complicated by PTB. PTB screening and prevention should be performed in HIV/AIDS patients in the future to effectively reduce the occurrence of PTB co-infection.