

OPPORTUNISTIC INFECTIONS IN THE CONTEXT OF AIDS: A CLINICAL CASE

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Abstract

Opportunistic infections (OIs) are the leading cause of morbidity and mortality in patients with acquired immunodeficiency syndrome (AIDS). This article presents clinical cases of two patients with HIV infection in the AIDS stage: a 32-year-old man and a 28-year-old woman, who developed various OIs. Diagnostic approaches, treatment strategies, and prognosis are discussed. Methods of prevention, including chemoprophylaxis and vaccination, are also considered. Additionally, risk factors, comorbidities, and possible complications are analyzed.

Keywords: AIDS, opportunistic infections, HIV, Pneumocystis pneumonia, tuberculosis, cryptococcal meningitis, candidiasis, prevention.

Introduction

AIDS (Acquired Immunodeficiency Syndrome) remains a pressing global public health issue despite significant progress in treatment and prevention. According to WHO, millions of people continue to live with HIV, and new cases of infection are reported annually. The highest prevalence of HIV/AIDS is observed in sub-Saharan Africa, but infection rates remain high in other regions, including Eastern Europe and Central Asia. In many countries, a high level of discrimination against HIV-infected individuals persists, preventing people from seeking medical assistance. A lack of information and persistent myths about HIV/AIDS lead to neglect of precautionary measures. Antiretroviral therapy (ART) enables individuals with HIV to live full lives, but it requires continuous adherence to medication.

HIV infection leads to progressive immunosuppression, contributing to the development of opportunistic infections. The most common OIs include Pneumocystis pneumonia, tuberculosis, cryptococcal meningitis, and candidiasis, all of which significantly worsen disease prognosis. A key strategy is the prevention of these infections, which includes timely initiation of ART and the use of prophylactic antibacterial, antifungal, and antiviral medications.

Research Objective

The objective of this study is to analyze clinical cases of opportunistic infections in the context of AIDS, assess the effectiveness of various treatment regimens, and examine the impact of antiretroviral therapy on disease outcomes.

Materials and Methods

The study includes data from two patients hospitalized in the infectious diseases department with an AIDS diagnosis and severe opportunistic infections. Clinical, laboratory, and instrumental data were assessed, along with diagnostic and treatment methods. Statistical analysis included a comparison of patient condition dynamics during therapy and an evaluation of risk factors for disease progression.

Clinical Cases. Patient 1: A 32-year-old male presented with progressive dyspnea, cough with minimal sputum production, and fever. Medical history revealed HIV infection diagnosed three years ago, with no ART initiation. Laboratory findings: CD4+ lymphocytes – 45 cells/ μ L, viral load – 500,000 copies/mL.

CT scans of the chest revealed diffuse interstitial infiltrates, characteristic of *Pneumocystis pneumonia*. The diagnosis was confirmed by PCR testing of sputum for *Pneumocystis jirovecii*. The patient was treated with co-trimoxazole, glucocorticoids, and ART. His condition stabilized with reduced dyspnea. However, concomitant esophageal candidiasis required additional treatment with fluconazole.

Patient 2: A 28-year-old female was admitted with severe headache, nausea, and episodes of loss of consciousness. Medical history revealed HIV infection with irregular ART adherence. CD4+ lymphocytes – 30 cells/ μ L. Lumbar puncture showed increased intracranial pressure, and cerebrospinal fluid analysis confirmed *Cryptococcus neoformans* (PCR and latex agglutination test).

She was treated with amphotericin B and flucytosine, followed by maintenance therapy with fluconazole. The patient was stabilized, and ART was initiated considering immune reconstitution syndrome. Given the high risk of tuberculosis, prophylactic isoniazid therapy was administered.

According to WHO, in HIV-infected patients who do not receive ART, opportunistic infections develop in 80-90% of cases, with a one-year mortality rate of 30-50% after their onset. *Pneumocystis pneumonia* is diagnosed in 40% of AIDS patients, and cryptococcal meningitis in 10-15%. ART introduction reduces the risk of OIs by 70-90%.

Discussion

The described cases illustrate typical OIs in AIDS patients. Both cases were characterized by critically low CD4+ lymphocyte levels, predisposing them to severe infections. *Pneumocystis pneumonia* is one of the most common OIs in HIV, while cryptococcal meningitis is a leading cause of mortality among HIV-infected patients with neurological symptoms.

Timely diagnosis and treatment play a crucial role in improving prognosis. In both cases, the administration of specific etiological therapy stabilized the patients' conditions. However, the delayed initiation of treatment due to late medical consultation highlights the need to expand screening programs and early HIV detection.



Furthermore, these cases underscore the importance of ART adherence. Irregular ART use in both patients led to critical immunosuppression, facilitating severe OI development. Therefore, enhanced patient education and motivation for treatment adherence are essential.

A comprehensive approach to managing such patients is vital, incorporating not only anti-infective therapy but also symptomatic treatment, nutritional support, and psychological assistance. These measures significantly improve quality of life and reduce OI recurrence rates.

Prevention of Opportunistic Infections. The prevention of OIs in HIV patients includes several approaches:

1. Primary prevention – Administration of co-trimoxazole at CD4+ < 200 cells/μL to prevent *Pneumocystis pneumonia*, isoniazid for latent tuberculosis, and fluconazole for cryptococcal meningitis risk.
2. Secondary prevention – Prevention of recurrence after an OI episode through continued maintenance therapy.
3. Vaccination – Recommended immunization against hepatitis B, pneumococcal, and influenza infections to reduce complications.
4. Timely ART initiation – Regular antiretroviral drug use is the primary method of preventing OI development.

Conclusion

Opportunistic infections remain a serious issue for AIDS patients, particularly in the absence of timely treatment. The presented cases emphasize the importance of early diagnosis and a combined therapeutic approach. Regular ART adherence, preventive measures, and vaccination significantly improve patient prognosis.

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