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Severe acute retroviral syndrome and immune reconstitution syndrome as risk factors for malignancies in HIV-infected subjects

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Malignancies are unfortunately common in HIV-infected patients, even in the era of effective antiretroviral treatment (ART).

At the same time, some immunological abnormalities can be risk factors for oncogenesis and lymphomagenesis. In patients with secondary immunodeficiency states (non HIV), e.g. after bone marrow transplantation or long-time steroid therapy, low cytotoxic-T-cell responses to oncogenic viruses can provocate their oncogenesis. It was shown, that low cytotoxic CD8-T-cellresponses in acute SIV infection determine severity of symptoms and more progressive course of disease. Low CTL responses may be particularly due to acquisition by CD8 T-cells the phenotype characteristics of CD8 T-regulatory cells. In the same time, such switching to regulatory phenotype may be due to proinflammatory microenvironment, e.g. like in patients with autoimmune diseases.

In patients with HIV/AIDS there are some clinical and immunological risk factors for oncological complications, for example immune reconstitution syndrome is a probable risk factor for NHL.

There are data that severe acute retroviral syndrome (or severe acute simian immunodeficiency virus infection) as a factor for more aggressive course of HIV or SIV infection correspondingly.

Hypothesis

1) Severe acute retroviral syndrome and/or immune reconstitution syndrome are the risk factors for oncological complications in HIV-infected subjects.

2) Low cytotoxic CD8 T-cell responses to HIV-infected cells and acquisition by CD8 T-cells the phenotype characteristics of CD8 T-regulatory cells can determine the severity of symptoms in primary HIV-infection.

The *aim* is 1) to estimate the rate of oncological complications in HIV-infected subjects in correspondence with severity of acute retroviral syndrome and immune reconstitution syndrome; and 2) to examine phenotypic characteristics of HIV-specific CD8 T-cells and regulatory CD8 T-cells in patients with primary HIV-infection.

Materials and methods. We propose both retrospective and prospective analyses of clinical data of HIV-infected patients with malignancies. The retrospective analyses will include evaluation of severity of acute HIV diseases and immune reconstitution syndrome using to medical charts in patients with documented malignancies.

The prospective analyses will include phenotypic characterization of HIV-specific CD8 T-cells and regulatory CD8 T-cells in patients with different course of acute HIV-infection.

Enrolment patients will be at St.-Petersburg AIDS Center and Botkin Infectious Diseases Hospital.

Proposed results. Evaluation of variety of severity of acute retroviral syndrome and immune reconstitution syndrome in comparison with defining immunological features will enable to estimate its association with oncogenesis.

Determination of phenotypic characteristics of HIV-specific CD8 T-cells and regulatory CD8 T-cells in primary HIV infection will enable to define immunological features in different variants of acute retroviral syndrome.

Brain Lesions in HIV-infected patients with Highly Active Antiretoviral Therapy: clinical and radiological comparisons

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Background and Purpose: The wide use of highly active antiretroviral therapy (HAART) significantly alters the structure of secondary manifestations of HIV-infection, including neurocognitive impairments and opportunistic infections resulting in brain lesions. The purpose of our study is to characterize the radiological semiotics of brain lesions of HIV patients having different immune status and viral load upon HAART.

Material and methods: Study group comprised 110 HIV patients. HIV infection was confirmed with standard laboratory tests. All patients were tested for CD4-cell counts and viral loads and subjected to brain MRI. The received data include duration, route of infection, disease stage and phase, clinical information about opportunistic infections, start date of HAART intake and its duration, CD4 counts, viral load, results of laboratory tests for opportunistic infections. Subgroups were defined according to