Background

Adult T-cell leukemia–lymphoma (ATL) is a rare and aggressive T-cell malignancy caused by human T-cell lymphotropic virus (HTLV-1). The prognosis of ATL is generally poor due to a myriad of factors that include intrinsic chemoresistance and immunosuppression. While there are more clinical variants, aggressive forms with dismal prognosis and more smoldering types, there is no consensus to date regarding the optimal treatment. [1] ATL often occurs in HTLV-1–endemic areas such as Japan, the Caribbean, South America or Middle East.

In Europe, Romania is the only HTLV-1 endemic country (Fig 1)[2]

Fig 1 – The seroprevalence of HTLV-1 in Europe map [2]

In the early 90's, Romania also faced an HIV-1 epidemic due to nosocomial transmission in healthcare settings and subsequent horizontal transmission. We previously demonstrated the coinfection with multiple HIV-1 strains in a PWID patient cohort [3]. The HIV-1 and HTLV-1 coinfection is a rare finding, although both are CD4+ tropic retroviruses that share similar transmission routes.

We hereby report a case series of three HIV-1 and HTLV-1 coinfecting patients referred to our center for ATL diagnosis and management.

Double trouble: HIV-1 and HTLV-1 coinfection in Romanian ATL patients. A case series.

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Case reports

Case #1: a 31 y/o male with favourable chronic ATL, with hemophilia A and transfusional history, known with HIV-1 and HCV infections, presented in 2015 for lymphocytosis (28% clover-leafed lymphocytes with abnormal adult T-cell immunophenotype – (Fig 4) weak ic/sCD3, nuTdT-, CD25-, CD5+, CD2+, CD4+, CD99+, CD7-, CD38-) and positive HTLV serologies. The HAART schema was readjusted and supplemented with α -Interferon; the patient is in persistent CR is ever since.

Case #2: a 50 y/o male with acute ATL, recently diagnosed with HIV-1 and HTLV-1 infection presented with lymphocytosis (46% abnormal T-cells), severe agranulocytosis, thrombocytopenia and anemia. The bone marrow biopsy showed massive T-cell infiltrate. The patient progressed rapidly to septic shock and multisystem organ failure and died in less than 30 days after the presentation.

Fig 2 – The histopathological and immunohistochemical stains of lymph-node biopsy: medium-sized activated T cell proliferation, CD3+ CD25+ CD4+ CD30- CD20- TdT-

Case #3: A 39 y/o male with lymphoma type ATL, with history of unprotected bisexual contacts, recently diagnosed with HIV-1 infection, presented with fatigue, weight loss and lymphadenopathies. The lymph node biopsy (Fig 2) revealed CD25+ adult T-cell lymphoma, the bone marrow biopsy identified 10% CD25+ T-cells lymphoid infiltrate. the CT scan (Fig 3) showed disseminated large lymphadenopathies and the immunophenotyping of the CSF elements counted a 76% T-cell population.

Fig 3 – CT scan images showing subdiaphragmatic large adenopathies

The patient received 6 courses of CHOP-like chemotherapy with the intent of allo-HSCT, but the intermediary CT evaluation showed the dimensional progression of the adenopathies under chemotherapy.

Discussions

Although rare and poorly documented, the development of ATL in coinfecting HIV-1/HTLV-1 patients are likely be seen in endemic areas like Romania since both retroviruses share the transmission route.

The double immunosuppression in these patients can augment the infectious complications and worsen the outcome.

However, some antiviral agents could be effectively used against both the viruses.

1. Hermine O. ATL treatment: is it time to change? Blood. 2015;126(24):2533-4.
2. European Centre for Disease Prevention and Control. Geographical distribution of areas with a high prevalence of HTLV-1 infection. Stockholm: ECDC; 2015.
3. Popescu B et al. NGS combined with phylogenetic analysis to detect HIV-1 dual infection in Romanian people who inject drugs. Microbes Infect. 2018;20(5):308-11.

Fig 4 – Flow cytometry showing abnormal T-cell immunophenotype: CD5+, CD2+, CD4+, CD8-, weak CD3+, CD7-, also CD25-