HIGHLY ACTIVE ANTI-RETROVIRAL THERPY INDUCED ANEMIA

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ABSTRACT

A Female patient of age 60years was admitted in the hospital with complaints of Breathlessness, cough, mild expectoration& abdominal pain since 1week, and has a history of loss of appetite. The patient had a past medical history of HTN (treated with AMLODIPINE), HIV (treated with zidovudine and RIBAVIRIN). Her lab investigations showed decreased Hb levels (5.5gm/dl), RBC (1.44million cells/cumm), WBC (3200cells/cumm), PCV (12.4%) &BP-(150/90mm hg). As she has been on treatment with zidovudine and ribavirin, these drugs will induce anemia and hence has to be monitored proportionately. The presented complaints of the patient are treated well significantly. To reduce the adverse effects of zidovudine and ribavirin, an alternative drugs like didanosine & abacavir (NNRTIS) with indinavir (protease inhibitors) can be chosen as a standard goals of therapy.

KEYWORDS: HTN (hypertension), NNRTIS (non-nucleoside reverse transcriptase inhibitors), Anemia, HAART (highly active anti retroviral therapy).

INTRODUCTION

Anemia has been shown to be the most frequent hematological abnormality in HIV infected patients globally. Even among those initiating anti retroviral therapy (ART), anemia has been to be a strong risk factor for disease progression and subsequent death independent of CD4 and viral load. The presence of severe anemia at ART initiation is associated with increased risk of death.

The major cause of anemia is impaired erythropoiesis resulting from the release of inflammatory cytokines and decreased production of hematopoietic growth factor, coupled

with malabsorption and impaired recycling of ion. Among patients initiating anti retroviral therapy the use of Zidovudin, Ribavirin etc containing regimen has been associated with the incidence of anemia, and bone marrow toxicity has been postulated.

CASE REPORT

We report the case of a 60years old HIV infected female receiving zidovudin, ribavirin treated with severe non responsive anemia. The patient is hypertensive was diagnosed with HIV infection previously at a primary health clinic and is on the HAART. She is now presented with complaints of breathlessness, cough with mild expectoration and abdominal pain since one week. There is a history of loss of appetite.

HAART had been given with 300mg BD of Zidovudin, 800mg OD of Ribavirin. The patient had been on Bactrim DS(Sulfamethoxazole+Trimethoprim)primary prophylaxis for pneumocystis jirovecii pneumonia since HIV diagnosed and was taking no other traditional or herbal medication.

Her full blood count revealed a Hb level of 5.5g/dl, R.B.C of 1.44 million cell/cumm, PCV of 15.4%, WBC of 3200 cells/cumm, MCV of 77.9 pg/red cells, MCH of 25.7pg/cells and MCHC of 33g/dl.

The physical examination revealed the patient being febrile (101°F), blood pressure of 180/90mmHg, normal pulse rate of 78beats/min and with a respiratory rate of 18breaths/min. The systemicexaminations were normal.

The patient was treated for unconfirmed urosepsis with 2gms of Ceftriaxone once daily for 5days, and pneumo cystis jirovecii pneumonia prophylaxis was continued along HAART. Tab. Amlodipine 5mg po once daily was given as the patient is hypertensive. Cap. Fefol (Ferrous sulphate & folic acid) po once daily to improve Hb. Nebilisation with Duolin (levosalbutamol+iptratopium bromide) 6th hrly, Tab. Montec-LC(Montelukast sodium) once daily, Syp. Ambroxol(ambroxol hydrochloride)10ml TID. However erythropoeisis was markedly reduced and disordered.

DISCUSSION

Current treatment for HIV infection consists of highly active antiretroviral therapy, or HAART. This has been highly beneficial to many HIV-infected individuals since its introduction in 1996 when the protease inhibitor-based HAART initially became available.

Current optimal HAART options consist of combinations consisting of at least three drugs belonging to at least two types, or "classes," of antiretroviral agents.

Typical regimens consist of two nucleoside analogue reverse transcriptase inhibitors (NARTIs or NRTIs) plus either a (protease inhibitor or a non-nucleoside reverse transcriptase inhibitor (NNRTI). Because HIV disease progression in children is more rapid than in adults, and laboratory parameters are less predictive of risk for disease progression, particularly for young infants, treatment recommendations are more aggressive for children than for adults. In developed countries where HAART is available, doctors assess the viral load, rapidity in CD4 decline, and patient readiness while deciding when to recommend initiating treatment.

Standard goals of HAART include improvement in the patients quality of life, reduction in complications, and reduction of HIV viremia below the limit of detection, but it does not cure the patient of HIV nor does it prevent the return, once treatment is stopped, of high blood levels of HIV, often HAART resistant. Moreover, it would take more than the lifetime of an individual to be cleared of HIV infection using HAART.

Drug- induced anemia is a blood disorder that occurs when a medicine triggers the body's defense (immune) system to attack its own red blood cells. This causes red blood cells to break down earlier than normal. Drug can cause the immune system to mistakenly think your own red blood cells are dangerous, foreign substances. Antibodies then develop against the red blood cells. The antibodies attach to red blood cells and cause them to break down too early. There are many other rarer causes of drug-induced hemolytic anemia. This includes hemolytic anemia associated with glucose-6 phosphate dehydrogenase (G6PD) deficiency. But in this case, the breakdown of red blood cells is due to a certain type of stress in the cell, not the body's immune system.

Treatment: Stopping the drug that is causing the problem may relieve or control the symptoms. Some persons may be given prednisone to reduce the immune response against the red blood cells. Special blood transfusions may be needed to treat severe symptoms.

CONCLUSION

The recent development of HAART have highly improved the longevity of HIV-AIDS patients though, the life-long treatment can be associated with potential toxicities which in this case was enlightened with the use of zidovudine and ribavirin which lead to anemia.

These significant toxicities can be prevented by occasional transfusions alternative drugs like didanosine and abacavir(NNRTIS), indinavir(protease inhibitors) or by using iron suppliments, regular followup and monitoring the patients CD4 count, Hb and BMI which may improve the patients quality of life.