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A REVIEW ON: HIV AIDS

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ABSTRACT
HIV/AIDS has always been one of the most thoroughly global of diseases. The humanimmunodeficiency virus (HIV) is a lent virus that causes HIV infection and AIDS. AIDS is a condition in humans in which progressive failure of the immune system allows life-threatening infections and cancers to thrive. Infection with HIV occurs by the transfer of blood, semen, vaginal fluid, breast milk. Within these bodily fluids, HIV is present as both free virus particles and virus within infected immune cells. HIV infects vital cells in the human immune system such as helper CD4 T cells, macrophages. HIV infection leads to low levels of T cells through a number of mechanisms, including pyroptosis of infected T cells. The symptoms of AIDS are primarily the result of conditions that do not normally develop in individuals with healthy immune systems. Most of these conditions are opportunistic infections caused by bacteria, viruses, fungi and parasites that are normally controlled by the elements of the immune system that HIV damages. When condoms are used consistently by a couple in which one person is infected, the rate of HIV infection is less than 1% per year. There is some evidence to suggest that female condoms may provide an equivalent level of protection.
KEYWORD: *Agriculture, AIDS, Climate change, Development, Hunger, Malnutrition, Nigeria, Poverty.*

INTRODUCTION

HIV stands for human immunodeficiency virus. AIDS stands for acquired immuno deficiency syndrome.HIVH-It infects only human beings and also transmitted between humans not from animals. It is not transmitted from bites of mosquitoes, bats or any other species.I-The body has immune system whose function is to protect our body from germs, infections etc. But a person suffering from HIV has inability to fight against diseases. However, immune system becomes deficient.V-Virus is a small, simplest thing which is in inactive form outside the body and becomes active when it goes inside human body. AIDSA-It is not inherited means it cannot be transmit from one generation to another. It is transmitted to healthy person by infected person.I-It weakens the immune system.D-Creates a deficiency of CD4+ cells in the immune system.S-It is a collection of diseases.HIV is a virus that causes AIDS. Normally, our body has immune system that attack viruses and bacteria. Immune system has white blood cells which protect us from infections. White blood cells contain CD4+ cells which is also known as helper cells or T cells. A person who is infected will be able to develop. These infections take advantage of body's immune system. These infections cause several health problems and even lead to death of a person. HIV has inability to protect against diseases and count of CD4 cells also decreases in HIV. There is no cure of AIDS but there are certain medicines which are use to slow down the diseases so you stay healthier for long time. There is no medicine to get rid of diseases . HIV is a virus that causes AIDS. Normally, our body has immune system that attack viruses and bacteria. Immune system has white blood cells which protect us from infections. White blood cells contain CD4+ cells which is also known as helper cells or T cells. A person who is infected will be able to develop. These infections take advantage of body's immune system. These infections cause several health problems and even lead to death of a person.

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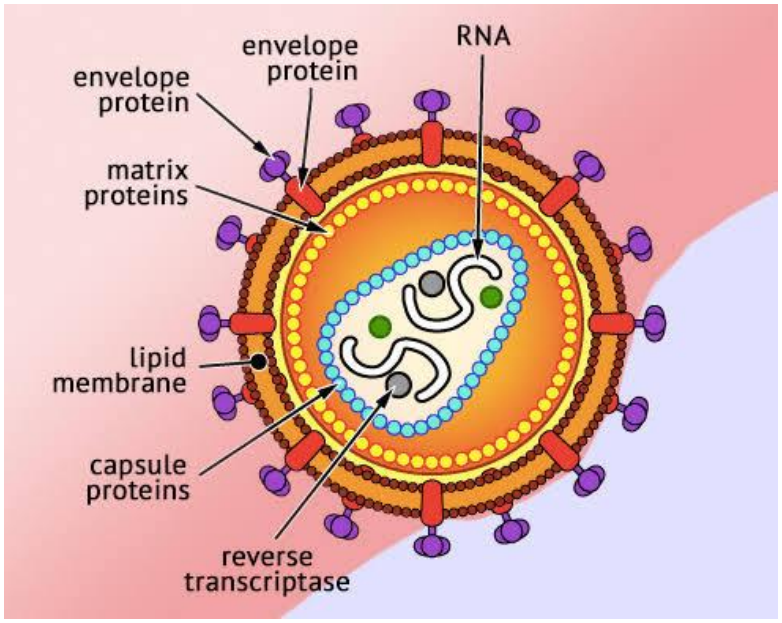


Fig.no.01

TRANSMISSION

HIV is transmitted principally in three ways: By sexual contact, by blood through transfusion, blood products or contaminated needles or by passage from mother to child. Although homosexual contact remains a major source of HIV within the United States, "hetero sexual transmission is the most important means of HIV spread worldwide today."Treatment of blood products and donor screening has essentially eliminated the risk of HIV from contaminated blood products in developed countries, but its spread continues among intravenous drug users who share needles. In developing countries, contaminated blood and contaminated needles remain important means of infection. Thirteen to thirty-five percent of pregnant women infected with HIV will pass the infection on to their babies; transmission occurs before as well as during birth. Breast milk from infected mothers has been shown to contain high levels of the virus also.HIV is not spread by the fecal-oral route; aerosols;insects; or casual contact, such as sharing household items or hugging. The risk to health care workers is primarily from direct inoculation by needle sticks. Although saliva can contain small quantities of the virus, the virus cannot be spread by kissing.HIV can be transmitted from an infected person to another through:

- Blood (including menstrual blood),
- Semen,
- Vaginal secretions,
- Breast milk.

DEFINITION OF HIV

HIV is known to be transmitted only through:

- Contact of infected blood, semen, or vaginal and cervical secretions with mucous membranes.
- Injection of infected blood or blood products.
- Vertical transmission (that is, from infected mother to fetus) and from mother to infant via breast milk.

INJECTION OF INFECTED BLOOD

HIV can be transmitted by infected blood getting directly into the bloodstream through intravenous, intramuscular, or subcutaneous injection. Blood-to-blood transmission occurs in the following ways:-

- Transfusion of contaminated blood and blood products and other blood recipients.
- Sharing of unsterilized hypodermic needles and syringes.

The risk of HIV Transmission is dependent on:

- The concentration of HIV in the infected fluid.
- The QUANTITY of fluid introduced into the body.
- The ACCESS of the infected fluid to the t4 cells.

Fluid with high concentration of HIV:

- Semen,
- Blood and blood components,
- Menstrual flow,
- Vaginal secretions,
  - Pre ejaculatory fluid
  - Breast milk.

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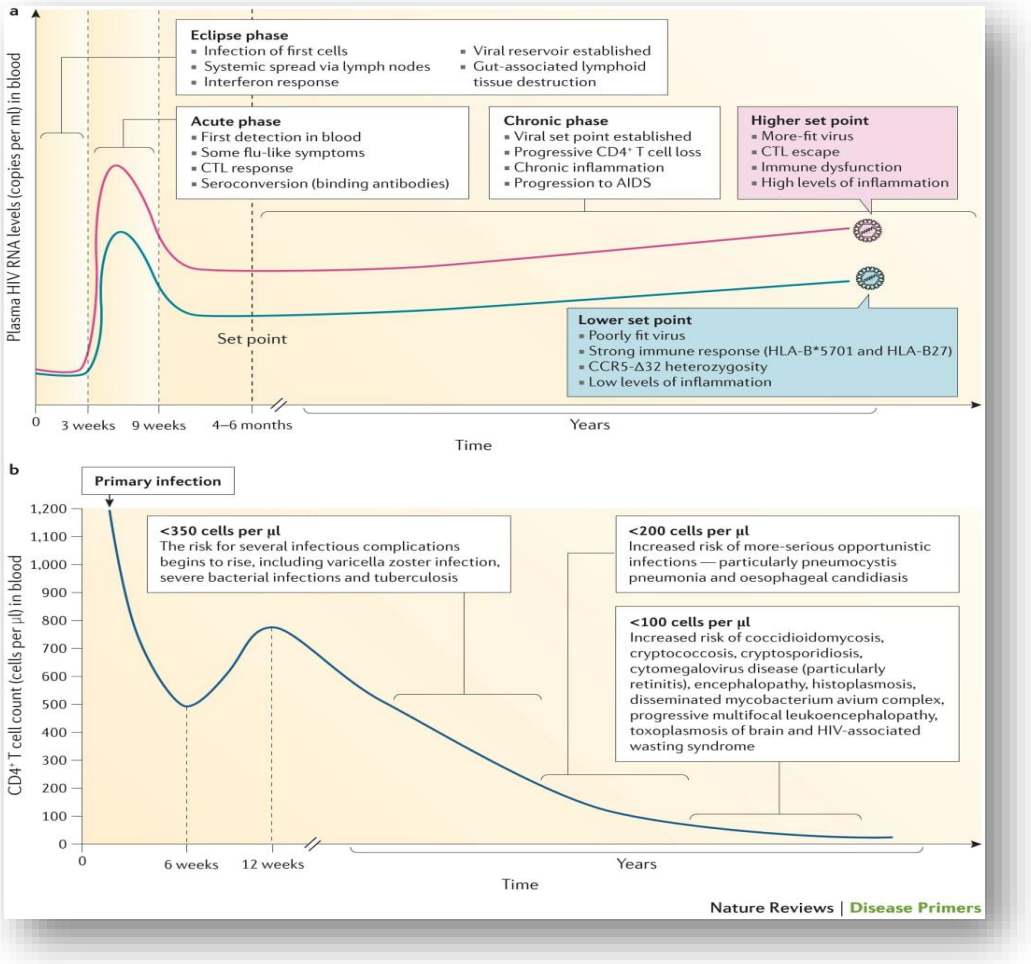


Fig.no.02

FLUIDS WITH LOW CONCENTRATION OF HIV

- Pus,
- Saliva,
- Tears,
- Urine,
- Feces,
- Vomiting,
- Nasal mucosa.

Entry to human cellsHIV is the only viruses which make new copies of itself inside the human cells. This process begins when this virus enters into cell that carries on its surface a protein that is cd4. The HIV virus stick to the cd4 receptor and allow them to fuse.HIV mainly infect immune cells i.e. T-helper cells that forms the body immune system. HIV infects more cells, therefore immune system becomes weak.ReversetranscriptionThere is an enzyme reverse transcriptase which helps in reverse Transcription. The main function of reverse transcriptase is conversion of viral RNA into DNA. After that DNA is transported to cell's nucleus where insertion of DNA is done by enzyme integrase.Transcription and translationNow, transcription takes place. HIV virus converts HIV virus into messenger RNA.

DISEASE STAGES

The natural history of HIV disease, has beginning inthe transmission of the virus to the individual death isdefined as a natural progression of the infection withoutantiretroviral therapy13 The HIV infection is character-ized by four phases: acute or primary infection, asymp-tomatic phase or clinical latency, initial or early symp-tomatic phase and AIDS 3. The acute phase is the period which correspondsfrom the transmission of disease to the formation of antiHIV antibodies, are observed with high levels viraemiamarked decline in CD4 + T cells and an increase in CD8+ circulating lymphocytes

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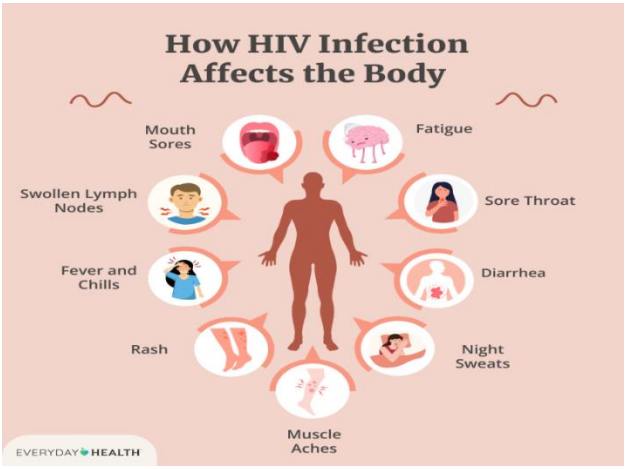


Fig.no.03

The most common symptoms are fever, sweating, malaise, myalgia, anorexia,nausea, diarrhea and pharyngitis non-exudative, andheadache, photophobia, meningism and maculopapularrash may occur neurological symptoms in a minority andaseptic meningitis, encephalitis, peripheral neuropathy isa polyneuropathy acute ascending known as Guil-lain-Barré syndrome. In some cases may occur aphthousulcers or esophagea.

The symptoms are self-limiting,and last an average of 14 days, their persistence may beassociated with more rapid progression to AIDS3. Acuteinfection is controlled only partially by the adaptiveimmune response and advances to the progressive infec-tion of peripheral lymphoid tissues. At this stage, HIVvirions penetrates the individual cells by fusion events, mediated by cellular receptor gp120/ gp411. After primary infection there is a second phase of thedisease, where the infected patient may remain asymp-tomatic for several years, may also have some very spe-cific symptoms such as persistent generalized lymphad-enopathy, fatigue, low-grade fever, night sweats, inter-mittent diarrhea and weight loss14. This phase of thedisease is called the HIV latency period where new vi-ruses are produced in low levels, only a few T cell hard-boring the virus, but the destruction of CD4 + T cellprogresses slowly in lymphoid tissues and the number ofsuch cells decreased progressively in blood. The bodycontinues to produce, however are destroyed with thesame speed with which they are produced. Over a periodof years, this continuous cycle of infection and death ofT cells and new infections lead to a steady decline in thenumber of CD4 + T cells in lymphoid tissues and circu-lating1 In early symptomatic phase, some symptoms presentnonspecific and variable intensity, the changes are nightsweats, weight loss and thrombocytopenia. The mostcommon opportunistic processes found in this phase areknown as oral and vaginal candidiasis, oral hairy leu-koplakia, gingivitis, aphthous ulcers, diarrhea, sinusitis,recurrent herpes simplex and herpes zoster3. The last stage of the HIV infection, AIDS, is charac-terized by drastic increase viraemia, increasing the rep-lication of the virus rapidly and without control. Presentscombinations of opportunistic infections, cancer, ca-chexia, renal failure and degeneration of the centralnervous system. The patient becomes susceptible to var-ious diseases due to marked decrease in CD4 + T cells,reaching very low levels. Many tumors that appear inindividuals with AIDS are due to viral and incapacity ofthe patient infected by HIV mount an immune responseagainst oncogenic viruses.

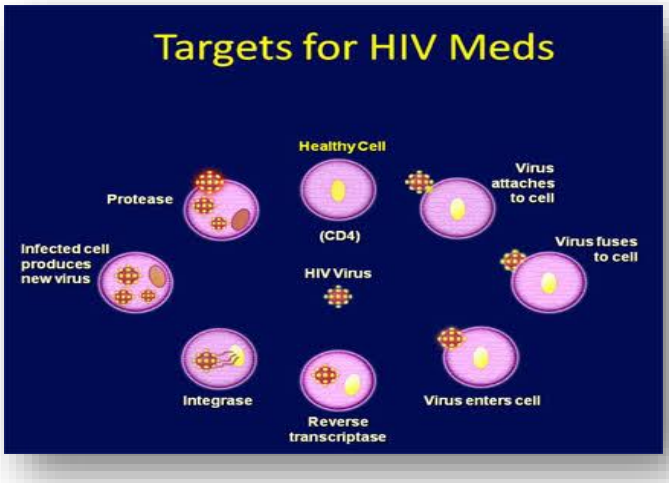


Fig.no.04

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SYMPTOMS

Many people who are living with HIV have no obvious signs and symptoms at all. Recent evidence shows that between 70% to 90% of people who become infected with HIV experience flu-like symptoms within a few weeks after infection. The most common symptoms are a fever, a rash and a severe sore throat all occurring at the same time. These symptoms in an otherwise healthy person may indicate recent HIV infection.HIV infected patients may get yeast infections (oral or vaginal) that do not go away or that occur often. Frequent and severe herpes infections that cause mouth, genital, or anal sores are also common.

Symptoms

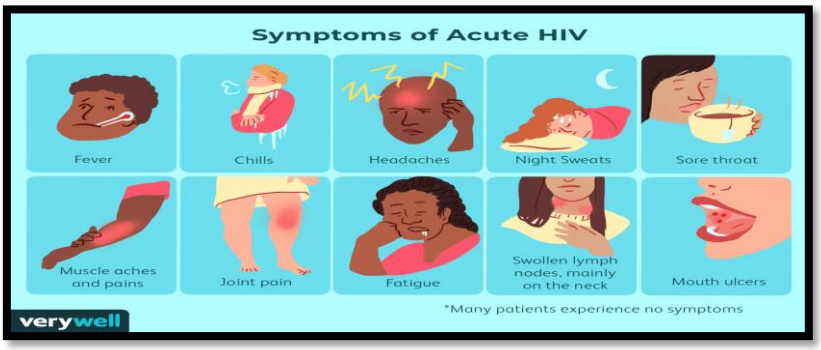


Fig.no.04

- large lymph nodes or "swollen glands" that may be enlarged,
- for more than three months,
- frequent fevers and sweats skin rashes or flaky skin that does not go away,
- short-term memory loss,
- slow growth or frequent illness in children,
- cough and shortness of breath,
- seizures and lack of coordination,
- difficult or painful swallowing,
- confusion and forgetfulness nausea, cramps diarrhea or vomiting that do not go away,
- vision loss,
- Unexplained weight loss.

OBJECTIVES

1. Determine the stage of HIV and related comorbidities to ensure timely diagnosis and treatment for patients.
2. Apply the principles of antiretroviral therapy and prophylaxis for opportunistic infections to prevent and manage adverse effects.
3. Interpret HIV treatment guidelines to ensure cultural sensitivity and maintain confidentiality for individual patients and affected populations.
4. Collaborate with interprofessional team members to ensure continuity of care, improve patient outcomes for HIV prevention and treatment, and mitigate the risk of AIDS.

CAUSES

HIV is transmitted when bodily fluids containing the virus are shared between people, including:

1. Blood
2. Semen
3. Pre-Seminal Fluid
4. Vaginal Fluids
5. Rectal Fluids
6. Breast Milk

LABORATORY DIAGNOSIS

Following infection, antibodies to HIV are, on aver-age, 3 to 12 weeks in serum or plasma3 Essentially aredivided into four groups of tests for detection of HIV,known as antibody detection tests, antigen detection tests,culture technique, and the virus genome amplification assays. Routinely used in the initial screening antibody detection tests against the virus, known as Enzyme Linked Immuno Sorbent Assay (ELISA) is intended for the detection of antibodies, anti-p24, gp41 and gp120, and is considered a highly sensitive and specific test. For confirmation of positive ELISA test, it is necessary conduct the Western blot test (WB),which are detectedviral proteins3,16. In its second edition the technical manual for the di-agnosis of HIV infection currently is approved by Ordi-nance No. 29 of 17 December2013 The manual pro-vides STD and AIDS Department's policies for the di-agnosis to be amplified and are including people who are diagnosed and can start treatment soon after confirma-tion of diagnosis, contributing to quality of life of and reducing the likelihood of HIV transmission. The main purpose of this manual is to expand the possibilities for diagnosis and also mainly instruct healthcare profession- als to secure completion of the diagnosis of infection, comprising in its six flowcharts infrastructure that allow the diagnosis, enabling this in different locations and situations with laboratory infrastructure or not taking active responsibility to meet all looking for this diagno-sis17.

TREATMENTS

In November 1996, Brazil became the first country tomake available free of charge through the Unified HealthSystem (SUS), all drugs necessary for the treatment ofpatients living with HIV / AIDS18 Are currently used in Brazil, four classes of an-tiretrovirals, which are considered more potent and lesstoxic, divided as Nucleoside Reverse Transcriptase In-hibitors (NRTIs) Nucleoside Inhibitors No ReverseTranscriptase (INN-TR), inhibitors protease (IP), andIntegrase Inhibitors19. Antiretrovirals NRTIs are drugs that block the actionof the enzyme reverse transcriptase. Activation of nu-cleoside inhibitors of metabolites occurs in the firstphosphorylation. Due to difficulties in many moleculesmonophosphorylated be created is analogous drugs

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pos-sessing a nucleotide phosphate group in its structure,requiring only two phosphorylations to prevent tran-scription of RNA into DNA, and thus preventing viralreplication. Hoewver, the antiretroviral group NNRTIare considered as non-competitive binding to an allo-steric site of the enzyme. This interaction causes the ac-tive site responsible for the formation of the double helixof DNA, has restricted their mobility and flexibility,which results in a drastic reduction in enzyme efficien-cy20.Protease inhibitors (PIs) interfere in the last stage ofviral replication, preventing the formation of new viruses.

PREVENTION

According to the Department of STD, AIDS and Vi-ral Hepatitis the most efficient way of AIDS preventionis the use of condoms in all sexual relations, decreasingthe risk of transmission to 5%17, blood or blood products,semen, body fluids and breast milk of infected personshould be avoided for contacts unprotected . In pregnant women, for prenatal tests should be per-formed to detect viruses and if positive for HIV treat-ment must be performed in order to prevent contamina-tion of the embryo in order that vertical transmission, iefrom mother to child can occur often in utero or duringbirth, there is also the possibility of transmission throughbreast milk1. Health professionals can be contaminated throughoccupational transmission, generated by the accident atwork, where they can be injured with cutting and sharpinstruments contaminated with blood of patients withpositive serology for HIV. Some factors that may con-tribute occur occupational contamination, such as theextension and the depth of the wound, the presence ofblood in the instrument causing the accident and the pa-tient is a source with a high viral load with advancedimmunodeficiency signals. Control measures should beadopted in order to minimize the risk of transmission bythis type of contamination among which we highlight:the effective practice of biosecurity standards in invasiveprocedures to implement new technologies and the studyto determine the risk factors associated seeking theirelimination3. Routine screening for HIV in blood donors have sig-nificantly reduced the rich transmission this way. Tocontrol the epidemic by HIV effective prevention is ex-tremely important, adopting public health measures todecrease the use of contaminated needles used by intra-venous drug user and the use of condoms, even amongHIV-positive partners, avoiding reinfection of viralstrains resistant to drugs which can have serious com-plications health, and campaigns on HIV/ AIDS for pub-lic awareness.

CONCLUSION

Despite constant efforts of science in search of per-manent cure for HIV, yet we know that this outcome was not completed, totalling a high morbidity and mortality national and world, becoming, since its discovery, a ma-jor epidemic, can be considered a pandemic. The weak-ening and the weakness of the immune system occur by lysis or decrease in lymphocytes of type CD4 +, a cell that is part of the defences system, making the white blood cells, it causes the body becomes susceptible to opportunistic infections and/ or tumors, since these are responsible for organizing and directing the response by the aggressors attack. The adherence to antiretroviral therapy has provided better quality of life and has con- tributed to decrease the spread of HIV. However, pre-vention is still the best way to control the disease, since its spread is mainly through sexual contact, leading to many individuals to become vulnerable. The changes caused by the fact that HIV compromises the immune system, hence the importance of investments in research, awareness, government and popular actions, so there in the near future to reduce the epidemic and the much de-sired cure this disease.

REFERENCES

1. *Coffin, J. M. Molecular biology of HIV. In The Evolution of HIV, ed. K. A. Crandall, 1999; 3-40.*
2. *Friedland, G. and Klein R. Transmission of HIV. Nejm1987; 317:18: 1125-1135*
3. *Downs, A.M. and De I. Vincenzi. Probability of heterosexual transmission of HIV: relationship to the number of unprotected sexual contacts. Europeon study Group in heterosexual transmission of HIV. J. A cquir Immune Defic Syndr Hum Retroviral 1996; 11(4): 388-95.*
4. *Amborzia, J. and Levy J. A. Epidemiology, natural history and Pathogenesis of HIV Infection. In Sexually Transmitted Diseases, 3d ed, ed. K.K. Holmes, P.F. Sparling, P.A. Mardh, S.M. Lemon, W.E. Stamm, P. Piot, and J.N. Wasserheit, 1998; 251–58.*
5. *Palella, F.J., Delaney, K.M., Moorman, A.C., Loveless, M.O., Fuhrer, J., Satten, G.A., Aschman, D.J. and Holmberg, S.D. Declining Morbidity and Mortality among Patients with Advanced Human Immunodeficiency Virus Infection; N England Journal of Medicine 1998; 338: 853–860.*
6. *Pope, M. and Haase, A. Transmission; acute HIV-1 infection and the quest for strategies to prevent infection. Natural Medicine 2003; 9(7): 847–852.*
7. *Tripathi, K.D. Essentials of Medical Pharmacology, 6thedition, Jaypee brothers, medical publishers ltd., N*
8. *8.Ministério da Saúde (BR), Secretaria de vigilância emSaúde – Departamento de DST, Aids e Hepatites Virais.Boletim epidemiológico HIV/AIDS. Brasília: Ministérioda Saúde, 2013.*
   Disponívelem:http://www.aids.gov.br/publicacao/2013/boletim-epidemiologico-aids-e-dst-2013
9. *Schuster AD, Lise MLZ, Hoerlle JL. Avaliação soro-lógica de HIV por técnicas de ELISA de quarta ge.*
10. *Ministério da Saúde (BR), Secretaria de Vigilância em*
11. *Saúde - Departamento de DST, Aids e Hepatites Virais.Manual Técnico para o Diagnóstico da Infecção pelo HIVBrasília: Ministério da Saúde, 2014. Disponível em: http://www.aids.gov.br/noticia/2014/manual-tecnico-para-o-diagnostico-da-infeccao-pelo-hiv-0*
12. *Vielmo L, Campos MMA, Beck ST, Andrade CS.Atenção farmacêutica na fase inicial de tratamento daAIDS como fator importante na adesão aos antirretrovi-rais. Rev Bras Farm. 2014; 95(2):617-35.*
    Disponível em:http://www.rbfarma.org.br/files/646-Atencao-farmaceuti ca-na-fase-inicial-de-tratamento-da-AIDS-como-fator-importante-na-adesao-aos antirretrovirais--FINAL.pdf
13. *Bonifácio FPS, Godoy FSP, Francisco DKF, Oliveira LC.Alterações metabólicas associadas à terapia antiretroviral em pacientes HIV positivo. Cadern Esc Saúde. 2013;1(9):139-49.*
    Disponívelem:apps.unibrasil.com.br/revista/index.php/saude/article/view/.../937