OPPORTUNISTIC DISEASES RELATION ON PATIENTS SEROPOSITIVE

ARILTON JANUÁRIO **BACELAR JÚNIOR**[1], EUCILENE GONÇALVES DA **SILVA**[2], FLÁVIA LIMA **FERREIRA**[2], GERMANA MARIA MEDEIROS DE **ASSIS**[2], GIZIELE REIS DE ALMEIDA **NUNES**[2]

1. Pharmacist-Biochemist and Bachelor of Laws. Specialist in Clinical Analysis, Infectious Parasitic Diseases, Waste Management in Health Care, Education Law and Public Law. Doctoral Student in Law and Social Sciences. MBA in Educational Management. Coordinator of Pharmacy Course of the Faculty President Antonio Carlos Ipatinga-UNIPAC. Member of the CRF-MG Education Commission; **2.** Ungraduated Student of Biomedicine, Faculty Única, Ipatinga.

* Faculty Presidente Antônio Carlos, Ipatinga - Marquês de Caravelas Street, 148, Cidade Nobre, Ipatinga, Minas Gerais, Brazil. CEP 35162-148 dr.arilton@gmail.com

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ABSTRACT

The HIV virus nowadays is the subject of guidelines discussed worldwide. Issues related to social values, rights and potential infectious virus because of easy contagion and high social cost guide the main discussions. AIDS is still a disease that generates a lot of prejudice and discrimination, even after years of intense dissemination of information by various media channels, aimed at humanizing the process, for the benefit of HIV carriers and attempt to consolidate basic knowledge of the population. Which were analyzed opportunistic diseases present in patients with reduced immunity due to an increase in viral load of HIV-positive person as well as the means of transmission and treatment after diagnosis. It is felt that most carriers have information about their disease, with regard to the mode of transmission, prevention. However it has been observed that there are patients that do not use of barrier methods or procedures in accordance with the biosafety standards due to discrimination, and bias regulating society since this practice shows them.

KEYWORDS: HIV, AIDS, immune system, opportunistic Infections.

1. INTRODCTION

The acquired immunodeficiency syndrome (AIDS) has been recognized by mid-year 1981 in the US. The first case of HIV infection in humans has been documented in 1959 in the Democratic Republic of Congo, but was only officially registered in 1981[1]. The first cases of HIV positive people in Brazil were confirmed in 1982 in São Paulo[2].

The HIV is a retrovirus, consisting of RNA and a protein envelope. This virus attacks our body's defense cells, leaving the body more vulnerable to various infections known as opportunistic infections[3]. These infections caused by opportunistic pathogens are expected, since the virus causes a great loss of immunocompetence[1]. Fungal infections are the first clinical manifestations because of changes that occur in immune function mediated by T lymphocytes[4].

Some HIV-positive patients may live years without symptoms and without developing the disease, but they can transmit the virus to others. The virus can be acquired through sexual intercourse without prevention, dirty needles or from mother to child during pregnancy and breastfeeding[3].

The infection by the HIV is established by two phases: acute and chronic phase[5]. The acute infection is only partially controlled by the adaptive immune response. It is during this phase that occurs incubation of HIV, to emerge the first signs of the disease. This period can range from three to six weeks, the body takes between thirty to sixty days after infection to start producing HIV antibodies.

In the chronic phase of the disease, lymph nodes and the spleen are local replication of HIV continues and tissue destruction. In this period of the disease, the immune system remains active in dealing with most infections with opportunistic microorganism[6]. Opportunistic diseases only appear more severe in patients who already present sufficiently low immunity (immunocompromised).

A main social and health problem is the late self-discovery of the disease, as well as worsen the prognosis of the disease as the infected individual remains long transmitting HIV, will be exhibiting a large number of people at the same time that their treatment may be being postponed.[2].

The infection by the HIV virus is characterized by the appearance of opportunistic diseases such as oral candidiasis, herpes simplex, angular cheilitis among

others[7].

Thus, were analyzed the opportunistic diseases present in patients with reduced immunity due to an increase in viral load of HIV-positive person as well as the modes of transmission and treatment after diagnosis available.

2. MATERIAL AND METHODS

In order to produce the present study, we conducted a research of keywords in the databases: PubMed, Lilacs and SciELO. The Keywords used were HIV, AIDS, immune system, opportunistic Infections.

We selected the most relevant studies, which correspond to the period 2000 to 2014.

3. LITERATURE REVIEW

History

The acquired immunodeficiency syndrome (AIDS) was recognized in the years 1981, it was once known as a disease of homosexuals, non-contagious, due to the large number of San Francisco and New York homosexuals who had Kaposi's sarcoma. In mid 1987 it was observed Kaposi sarcoma in the elderly and children without any live with gay, reaching the conclusion that it was new disease causing low not yet classified immunity. Between 1987 to 1991 it was discovered that the virus could be transmitted by blood transfer[1,2].

Immunity refers to all the mechanisms of our bodies as protection against the strange environment to the body agents. The word “immunity” comes from the Latin “immunis”, which means free[8]. The immune response has many aspects that characterize and assist in the distribution of other systems. The main aspect of the immune system is its ability to recognize and respond compounds or foreign organisms. The initial contact invasive, external agent gives rise to a chain events leading to activation of certain lymphocytes cells [8].

HIV is a retrovirus, classified in the subfamily of lentiviridade that attacks the immune system[3]. They are enveloped viruses of ribonucleic acid (RNA) positively tape with unique morphology and replication means. Retroviruses are probably the most studied group of viruses in molecular biology[9].

The lymphocyte displays receptors with unique specificity both B cells and on T cells. It is known that T and B cells have different molecular papers[10]. The CD4 + T lymphocytes are the primary targets of this virus. HIV penetrates the CD4 altering the DNA of that cell and releasing multiple copies of the infecting virus. After multiply, breaks the lymphocytes to continue the search for other infectious cycle[3].

Opportunistic infections can be a simple flu or more severe infections such as tuberculosis. HIV contains an infectious particle that consists of two identical RNA packaged tapes with a viral core proteins and surrounded by an envelope of two layers of phospholipids derived from the membrane of the host cell, which is also included in the proteins of the virally encoded membrane[6].

Nowadays it is clear that is at least two types of HIV, and that HIV-1 and HIV-2, these are related to each other, HIV-2 is endemic in West Africa and also currently spreads in India. However, most cases of seropositive throughout the world is caused by HIV-1, being the most virulent[1].

The infection by HIV, has a course that traversed from the acute phase to the most advanced chronic phase of the disease. In untreated individuals it assesses that the average time between infection and the onset of the disease is around ten years. Nevertheless, since the first cases of HIV positive people found was very evident the serious and progressive as the immune compromised patients infected with HIV[5].

In the acute phase the disease has the flu features, with plenty of virus note if a marked drop in the levels of circulating CD4 T cells in the peripheral blood. In this stage it is difficult for diagnosis, unless there is a strong suspicion of HIV infection. Virtually all cases the patients to an activation of CD8 T cells kill the cells in which HIV infection and delay the production of antibodies, or seroconversion[1]. The critical phase of the disease occurs when the clinical manifestations of infections that are unusual. The diagnosis of any disease associated with HIV can be classified as unusual neoplasms categories, opportunistic infections[10]. The immune system begins to be attacked when there is infection by HIV; It occurs in the acute phase of HIV incubation - time between exposure to the virus to emerge the first signs of the disease. This period can range from three to six weeks, the body takes between thirty to sixty days after infection to begin producing antibodies to HIV[3].

Viral structures

The term lentiviruses, came from Latin lentus (slow), because this virus persist and continue to replicate for years before causing damage and signs of evidence to the disease. A virus particle contains two identical separate strands of genomic RNA and three enzymes; integrase, protease and reverse transcriptase. HIV has ribonucleic acid (RNA) positively tape that replicate through a DNA intermediate. Viral DNA copy integrates into the host chromosome, becoming a cellular gene[9]. HIV has tropism to dendritic cells and macrophage, since it need cells with low levels of CD4 on their surface. To infect the cell the virus need correceptor glycoprotein GP120 which expresses on its surface. The GP120 causes a change on its amino acid sequence. The infected cells serve as virus reservoir without causing cell death for viral replication[11].

Transmission and prophylaxis

The impacted the epidemic provoked challenges to all health professionals the search for improvements and solutions both in the method of prevention, treatment, and the quality of life of HIV-infected individuals (BRAZIL, 2014)[13]. The main forms of HIV transmission are related to contact with blood from infected individuals, usually in vulnerability or risk situations outside of hospital settings. It may occur with use of the same syringe or needle contaminated by more than one person or transfusion with HIV contaminated blood[14].

However, the main form of exposure worldwide is sexual, and the transmission in intercourse without using a condom is considered by the World Health Organization as the most frequent[14].

Vertical transmission occurs from infected mother to child during pregnancy, childbirth or breastfeeding. Intrauterine transmission is possible at any stage of pregnancy. The risk of HIV from mother to-child transmission can be reduced by up to 67% with the use of the drug during pregnancy and at delivery, and drug administration to the newborn for six weeks [14]. In these cases is restricted the use of breast milk from mother to child and advised the use of artificial or milk banks[3].

Blood transmission associated with injecting drug use is due to the shared use of syringes and needles. This transmission route becomes important due to its world growth[3]. This transmission by blood transfusion is less relevant in industrialized countries and those that have adopted quality control measures of blood used, as it is in Brazil[15].

Occupational transmission occurs when health professionals are injured with needlestick instruments contaminated with blood from HIV patients[15].

HIV is not transmitted through saliva, tears, hugs, bathing, feeding, vomiting, sweat, feces or urine. HIV does not pass through uninjured skin, as this forms an effective barrier. Treating or caring for someone with HIV is not risky provided you follow the guidelines for prevention [15].

Diagnosis

Since the beginning of the HIV epidemic, the serological diagnosis of infection is carried out with at least two tests, one for sorting and a second, more specific, to confirm screening results[15].

The diagnosis of HIV infection is the detection of specific antibodies to the virus by serological or molecular amplification[16]. During the initial phase of primary disease does not detect the presence of anti-HIV antibodies in serum antibodies arise from the 3 - 4 weeks post infection[17]. The procedures performed in Brazil, for laboratory confirmatory diagnosis of HIV infection, are registered by the National Health Surveillance Agency (ANVISA) of the Ministry of Health. Among the methods used to record these tests it is important that they present 100% sensitivity or at least 99.5% specificity for laboratory evaluation, method, those which are conducted by the National Institute of Quality Control in Health, Oswaldo Cruz Foundation (BRAZIL, 2006)[3]. The procedures performed in Brazil, for laboratory confirmatory diagnosis of HIV infection, are registered by the National Health Surveillance Agency (ANVISA) of the Ministry of Health. Among the methods used to record these tests it is important that they present 100% sensitivity or at least 99.5% specificity for laboratory evaluation, method, those which are conducted by the National Institute of Quality Control in Health, Oswaldo Cruz Foundation[3]. The tests used to detect anti-HIV antibodies can be separated into: Screening Assays are designed to detect all infected individuals. The tests used to detect anti-HIV antibodies can be separated into: Screening Assays are designed to detect all infected individuals.

The Confirmatory tests are designed to identify individuals who are not infected, but having reactive in the screening test results. Screening tests have a high degree of sensitivity, since confirmatory tests have a high degree of specificity. Tests with high sensitivity capability produce few false-negative results, while with high specificity capacity tests produce fewer false-positive results[14].

The following anti-HIV tests are used:

- ELISA (Enzyme Link Immunosorbent Assays): is a method for detection of anti-HIV antibodies. This is a technique that has been widely used in antibody screening due to its ease of automation, low cost and high sensitivity and specificity.

- Bonding test: are used latex particles coated with HIV antigen when serum anti-HIV antibody positive agglutination reaction is evidenced by this method is simple and inexpensive.

- Polymerase Chain Reaction (PCR) or RNA Qualitative: This reaction is capable of producing millions of copies of DNA from a single copy, the amplification of DNA consists of three basic steps where denaturation occurs the separation of the DNA strands, coupled to hybridization of the primer to jail to the synthesis of new DNA strand these steps is one cycle on deference[18].

- Fluorescent antibody technique: it is a serological confirmation test that uses glass slide. The HIV-infected cells are fixed to the blade and then incubated as the patient's serum is added following anti-human immunoglobulin labeled with fluorescein isothiocyanate substance where the positive is identified by fluorescence this method requires more time and skill the ELISA, and fluorescence microscopy[18].

- Western blot: a test is considered the gold standard for confirmation of results reagents in the screening stage of this method is fragmented gel to separate the viral antigen and thus allows the detection of antibodies

to individual proteins of HIV antigen [18].

Treatment

After identification of human immunodeficiency virus Gallo and Montagnier in 1983 and 1984, along with pathophysiology provided the basis for therapeutic trials for HIV. Around 1985 kits have been developed for therapeutic efficacy of the drug compound[17].

In 1987 was created the first drug anti - retroviral specifies that Zidovudine or AZT drug is a viral reverse transcriptase inhibitor, she demonstrated partial efficacy on viral replication. In 1996 a new class studies have shown antiviral protease inhibitors of the enzyme responsible for cleavage poliproteicas tape[19].

Treatment is complex, require medical monitoring to assess the adjustments the body to treatment, side effects and possible difficulties on properly follow medical recommendations. Adhere to treatment for AIDS, it means taking the medicines prescribed by the doctor at the correct times, maintaining good nutrition, exercising, attending the health facility within the prescribed days, and other care[13.]

Antiretroviral drugs suggest in the 1980s to prevent the virus from multiplying in the body. The virus that causes AIDS does not kill HIV but help and avoids the weakening of the immune system, its use is critical to increasing the quality of life and the time of those who have AIDS[17]. Thus, the introduction of highly active antiretroviral therapy (HAART) has reduced approximately 33% the number of deaths post-infection with HIV[20].

Treatment is continuous, since it still does not know the cure for AIDS. However, accompanied is evaluated according to the uptake of drugs used, its potential, and the pathophysiological conditions of the disease in the carrier[20].

The individual infected with HIV suffer symptomatic or asymptomatic changes has a rapid onset or late it is enough to leave the body susceptible to opportunistic diseases that evolve quickly to death. The Antiretroviral Therapy (ART) aims to analyze the factors that interfere with antiretroviral treatment, according to the literature of literature review and guide the patient to the treatment and medication are the best way that we have to improve the quality of life to a carrier.

Opportunistic diseases

- Cytomegalovirus: (CMV) occurs in most patients infected with HIV being transmitted from similar way to HIV. Thus, it will infecting cells in a latent form and reactivating when defect occurs in immunity. HIV-positive patients with this disease are severely immunosuppressed, his CD4 cell count very low normal[11]. Cytomegalovirus can cause infections in numerous places of that person's body leading to various diseases such as ulcers, colitis, retinitis and pneumonitis. The retinitis is the most common disease that is caused by cytomegalovirus on HIV-positive patients, occurring retinal damage that if untreated can even lead to blindness[9].

- Kaposi Sarcoma (Ks) is the neoplasia more present in which are associated with the HIV virus. It is a tumor that may be red or purple, perform single or multiple that will grow quickly, its most frequent location is the palate followed by injury and the oropharynx. It is usually asymptomatic, although sometimes passes the boil and become painful. This neoplasia associated with HIV is considered very aggressive and resistant when treated in every way in HIV positive patients the Kaposi sarcoma lesions will affect the skin can also achieve different internal organs especially the lungs and gastrointestinal tract, will be broadcast on saliva is more common in immunocompromised individual[9].

- Genital Herpes Simplex: It is a common infection caused by a group of viruses that cause genital grouped vesicular lesions that four to five days will undergo an erosion type and then spontaneous healing in the injured tissue. His injuries are often are quite painful and followed by local erythema. The first manifestation is usually more intense and lengthy that the next that will occur aheadThe recurring profile of infection is random and can occur after a few weeks, months or even years before the crisis. Attacks can be brought about by factors such as emotional stress, sun exposure, fever, low immunity. The patient may even be contaminated by the same virus and have no symptoms and passing it to their partner during intercourse. The incubation period asks vary from one to twenty-six days. The frequency carriers that are in the sleep state can at any time, manifesting the disease. There is still no effective treatment for the healing of the disease. Treatment aims to reduce the manifestations of disease or increase the interval between attacks[3].

- Toxoplasmosis gondii: Toxoplasmosis is caused by the protozoan Toxoplasma gondii, which may be congenital or acquired[9]. The toxoplasmosis parasite was discovered almost simultaneously by Nicolle and Manceaux, Tunisia, and Splendore, in Brazil, in 1908. The toxoplasma is an intracellular protozoan parasite that can reach many tissues of several mammals and birds. Toxoplasmosis is a universal distribution of disease that infects millions of people worldwide.

The global distribution of the disease is between 20% and 75% of seropositive individuals. In Brazil, this number has been determined in seroprevalence between 50% and 80%[9]. This disease can appear in different ways by the human body. However in serological surveys show that over 80% of primary *T. gondii* infections occur asymptomatic form[21]. *Toxoplasma gondii* has three in-

fective forms in its life cycle: oocyst, bradyzoites contained in cysts and tachyzoites[10]. The cats are the definitive hosts, which are related to the production and disposal of oocysts and multiplication of disease, so that only occurs therein will sexual reproduction of parasites. They will ingest the cysts are in tissues of warm-blooded animals, especially rats and birds. After ingestion of cysts they proceed to dispose of them in feces for a period of up to fifteen days and not sporulated oocysts, which probably will be disposed only once throughout life. Environment ideal conditions for temperature, pressure, oxygenation and moisture oocysts take a period of five days to sporulate and become infectious[8].

The parasite toxoplasmosis can be transmitted to humans through food. People can become infected by eating contaminated meat, not cooked. Accidental ingestion of contaminated raw meat after handling it and not wash their hands thoroughly. Eating contaminated knife or utensils that have been in contact with contaminated raw meat[9]. The woman was infected with toxoplasmosis during pregnancy can transmit the disease to the fetus. People who have received organ transplant can be infected if a donor who is with toxoplasmosis[10].

If the person infected with toxoplasma is being treated for control of immunodeficiency, as in organ transplants, and autoimmune diseases or AIDS, the active forms of the disease can be reactivated from the cysts, causing pneumonia, encephalitis with brain damage and myocarditis, with high mortality. The most severe cases of toxoplasmosis can be brain damage, eye disorders among others. The most severe cases of toxoplasmosis can be brain damage, eye disorders and other[9].

- Tuberculosis (TB): is an infectious disease causes the bacillus *Mycobacteruim tuberculosis* that affect the respiratory system causing discomfort for individual as cough, fever, sweating and chest pain, these are the most common symptoms of TB)[17]. TB significantly alters the clinical behavior alone; destroys lung alveoli, invading the bloodstream and reaches the lymph nodes and lymph nodes causing an uncontrolled viral load and a decrease in CD4+ lymphocyte count[19].

The Ministry of Health database of Sinan-TB associated with the SINAN-AIDS, we were identified that in Brazil, in 2011 there were 75,441 cases of TB, accounting for 39.21 cases per 100,000 inhabitants. Males predominated in the records with age of the infected between 30-44 years; since the female, owes its highest rate recorded in the age group 15-29 years.In Brazil (2013), have been identified by[21] about 9,340 cases of people with TB who are HIV positive. Regarding the knowledge of their status as HIV, 65% of TB patients knew about being HIV positive or not.

4. CONCLUSION

Since the discovery of HIV in 1981, AIDS has caused a million deaths worldwide. Its characteristic is destructive to our immune system, its destruction causes a lack in our immune system, causing destruction of CD4 + lymphocytes. The lack of CD4 +, possible appearances of the opportunistic diseases such as viruses, bacteria, fungi and parasites. A large number of individuals infected with HIV is aware only after the demonstrations causes for opportunistic diseases. Given that with the appearance of new diseases with low immunity and that uncontrolled viral load can lead the individual to death.

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