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ELDERLIES BEHAVIOR STUDYING DUE TO IMMUNODEFICIENCY SYNDROME (AIDS) INFECTION FROM BRAZIL

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ABSTRACT

This review is based on how the Brazilian elders behave upon their positive serology for Acquired Immunodeficiency Syndrome (AIDS), how they manage to live with it, life risks, how they acquired the syndrome and more. In the research, it was possible to identify several elders' habits that directly or indirectly interferes in their life with the disease, such as prevention, different sex practices, lack of use of condoms and how it relates with low education, performing bigger contamination risks among the population. Also, it has been analyzed aspects such as how their friends and relatives behave upon their serology and how previous comorbidities interfere in their health condition.

KEYWORDS

Aids, elders, HIV and quality of life.

INTRODUCTION

Throughout the ages, Acquired Immunodeficiency Syndrome (I.e Aids) has been considered one of the world's most fatal infectious diseases, with almost 1 million people dying from Aids each year (Roser & Ritchie, 2018). According to the Boletim Epidemiológico Epidemiological Bulletin (2021), referring to AIDS cases distribution in Brazil, were identified 1.045.355 reports between the period from 1980 to June of 2021, pointing the following percentage of the Brazilian Regions: Southeast (50,6%), South (19,8%), Northeast (16,5%), Midwest (6,9%) and North (6,2%). Meanwhile, from 2016 to 2020, the Northeast and Southeast regions had an average of, respectively, 14.1 and 8.7 thousand new cases of infection per year in this analyzed period, which make them the regions most affected by the virus. Furthermore, increasing incidence rate among elders (the less commented population when it comes to this disease) are worryingly shown. In this context, it was able to identify in the Sistema de Informação de Agravos de Notificação (Notification and Grievances information System) in the period from 2017 to 2021, an ascending incidence rate of 182.355 the Human Immunodeficiency Virus (HIV) infected people distributed in the most varied ages, which 6.612 thousand are seniors Epidemiological Bulletin (2021).

Sixty years old people or over have difficulty to cope with the syndrome due to their age and comorbidities, more common found among the elders, such as diabetes and systemic arterial hypertension. However, Antiretrovirals such as the Highly Active Antiretroviral

Therapy (HAART), made longevity possible, drastically reducing HIV related morbidity and mortality. As a result, tons of HIV infected people are obtaining more longevity Torres *et al.*, (2013).

In parallel with the prevalence of the disease among the old aged, it's important to realize its causes. Hormone replacement treatments and medications for impotence, such as Sildenafil Viagra®, encourages the elders to return to their active sexual life, whereas few of them care about the practice of safe sexual practices, which contributes to make this population more vulnerable to infections such as the HIV Neto *et al.*, (2015).

It is also important to consequently emphasize one of the various HIV viruses mechanisms, how they attack the immune system and how they manage to prevail. Besides its antigenic variation, the HIV virus infects and kills or compromises the immune function part of human cells by the mechanism called exhaustion. Exhaustion consists in a viral persistence which results in an antigenic stimulation, leading to a positive regulation of the T cell inhibitory receptors, as the PD-1. Apart from exhaustion, another notable HIV mechanism is the infection and/or inactivation or death of important immunocompetent cells, as the lymphocytes T CD4+, main inducers of immune responses to protein antigens. Also, other minor mechanisms occur, as much as Inhibition of innate immunity and inhibition of Complement System activation Abbas *et al.*, (2019).

In view of the concern about what's socially behind the pathology, this very Systematic Review Focuses on elders Acquired Immunodeficiency Syndrome

(AIDS) behavior from Brazil. The way they behave upon the disease, how they manage to live with it, how it affects their life quality, questions about how they face the medications that need to be taken and how they perceive longevity through them are what this article seeks for.

MATERIALS AND METHODS

The present review was performed using: National Library of Medicine (Pubmed), Virtual Health Library (BVS) and Fiocruz Institutional Repository databases. On Pubmed, the official descriptors were Aging, HIV and Brazil for this very review and "AND" as boolean operator. For the search strategy, ((Aging) AND (HIV)) AND (Brazil) were used, making 7 valid articles possible for analysis. After the reading of their title and abstract, 2 articles were selected. On BVS, HIV, Elderly and Brazil were used as official descriptors and "AND" as boolean operator. For its search strategy: (HIV) AND (Elderly) AND (Brazil), making possible to find a total of 196 articles, with the Systematic Review and Observational Studies. After reading the titles and abstracts, 11 articles were selected. For the Repositório Institucional da Fiocruz (Fiocruz Institutional Repository), the following descriptors were used: (Aged) AND (HIV) AND (Brazil), followed "AND" as boolean operator and a 2010-2019 filter as a inclusion criteria, which resulted in 3 valid articles. After reading the titles and abstracts 1 article was selected. Besides, statistics based upon 2 sources of information were found: Boletim epidemiológico (Epidemiological Bulletin) Ministry of Health and OurWorldInData

Roser & Ritchie (2018). A total of 14 valid and selected articles were used for this very Systematic Review. All platforms searches were made on November 5th of 2022.

As an exclusion criteria, it was structured as: Pubmed (other diseases - 2; other countries - 1; other ages - 2). BVS: (duplicated - 32; non subject related - 82; other diseases - 43, other CDCs - 4; social programs - 2; other aged groups - 21, medications - 1; period of time longer than 5 years - 1). Fiocruz Institutional Repository (other group ages - 2). It is important to notice that this Systematic Review follows the Statute of Older Adults, so old adults are considered people aged 60 years old and over art. 1º Brazil (2003).

RESULTS AND DISCUSSION

14 articles, 2 two immunology books and 2 sources of reliable statistics were used on this very Systematic Review. The statistics found showed Aids taking place as the one of the world's most fatal infectious diseases, with almost 1 million people dying from Aids each year, as informed by OurWorldInData Roser & Ritchie (2018). We were able to identify 1.045.355 AIDS cases distribution in Brazil, between the period from 1980 to June of 2021, its regions percentage: South (19,8%), Southeast (50,6%), Midwest (6,9%), Northeast (16,5%), and North (6,2%). Also, a worrying ascending rate of 182.355 Brazilian HIV infected was identified in the period from 2017 to 2021, which 6.612 thousand are elders (information gathered by Epidemiological Bulletin). The articles showed Antiretrovirals reducing death

rate Torres *et al.* (2013). Also, medicamentations such as Viagra® encourage elders to return to an active sexual life, increasing HIV vulnerability to this very group age Neto *et al.*, (2015). Some of the mechanisms of the HIV virus were explained Abbas (2019) Roitt - Immunology Fundamentals (2018). Bigger comorbidities frequency were identified among the population studied, comparable to NCDs Figueiredo *et al.*, (2021). Therefore, a relation between larger dissemination of the virus among the seniors and socioeconomic level, education and knowledge about STDs is noticed Souza *et al.*, (2021) whilst medications for impotence, such as Sildenafil Viagra® makes their active sexual life possible Neto *et al.*, (2015). Thus, seniors are judged by society because of a taboo related to their sexual activities Mahmud *et al.*, (2021). Surprisingly, the seniors' infected statistics according to sexual orientation are: 73,9% heterosexuals and 7,2% homosexuals Silva *et al.*, (2018). Incidence and prevalence of PLWHA in Aracaju-SE are related among lack of education, married and heterosexuals males Dantas *et al.*, (2020). While in Recife-PE prostitutions intercours increase positive HIV serology among the seniors Araújo *et al.*, (2020). Still talking about education, low education has found to be a factor that leads the elders to late diagnosis. That is also associated to unhealthy habits and family and friends unacceptance and preconception about the disease in their old age relatives Silva *et al.*, (2018). Major risks of developing adjacent diseases also increase among the population studied Cabrera *et al.*, (2021). Lack of use of

condoms increases the virus dissemination among the elders Lima *et al.*, (2018). Early diagnosis and disease prevention are more likely among female elders and a bigger mortality rate is noticed when late diagnosis are made Souza *et al.*, (2021). Health care plans focused on specific groups if preferred Titon *et al.*, (2021), whilst the Brazilian Health Care System needs enhancements Souza *et al.*, (2021).

Before diving deep into the elders' subject, as said previously, we must understand and consequently emphasize one of the various HIV viruses mechanisms, how they attack the immune system and how they manage to prevail. The Virus has the peculiarity to act in the organism's defense cells, called Lymphocytes CD4+, which are affected by the Glycoprotein ligation Gp120 and the transmembrane ligation Gp41 which allows the virus to surpass the cellular membrane when connected to the CC-Quimiocinin 5 (CCR5) receptor, making its entrance to the cell possible and, in return, its recognition through the intracellular receptors called Class 1 MHC, which makes the HIV particles recognition for the Lymphocytes T CD8+ to destroy the Virus. Nevertheless, the Virus infects the T CD4+ Cells and weakens them, causing them to decay their quantity and prejudice the whole Immune System. Along the infection's chronification over the years, tons of individuals develop the Acquired Immunodeficiency Syndrome which predisposes to other opportunistic infections, leading rapidly to death when antiretroviral medications are not used Roitt - Immunology Fundamentals (2018).

Upon the general process of the HIV individuals infectability, lack of information findings of 60 years or over have been noticed. This very age group contemplates a bigger comorbidities frequency, likewise the Noncommunicable diseases (NCDs), easing the vírus acting Figueiredo *et al.*, (2021). In this context, it has been found the relation between socioeconomic level, education and knowledge about Sexually Transmitted Diseases (STDs), which culminates in a sexual life without protection, promoting its dissemination Souza *et al.* (2021). Therefore, among elders, maintenance of the active sexual life is achieved due to medications for impotence, such as Sildenafil Viagra® Neto *et al.*, (2015).

Seniors are, mostly, judged by their sexual desires Mahmud, *et al.*, (2021). Thus, they own intimacy interests, affective values and love: these feelings actually make them active society individuals. Though, non aged people still feed a taboo, not believing this is normal. Even among the elders, there is a misconception that leads them to believe that intercouses are not compatible anymore in their age, increasing insecurities about their sexuality. Besides that, to accentuate the situation, several factors corroborate to the taboo increasement, from Doctors that feel uncomfortable when they question their senior patients about their sexual activities on outpatient appointments, to misinformation about what Aids and HIV exactly are Mahmud *et al.*, (2021).

In relation to sexual orientation, it has been surprisingly found that most of the infected seniors are actually heterosexuals (73,9%), meanwhile only

7,2% are homosexuals. This statistic takes down the fallacy well spread in society that the majority of the HIV infected would be necessarily homosexuals. A curious fact found is that, among the HIV positive elders, there is a misled perception that the risk groups concentrate only between prostitutes, homosexuals and young people, forgetting they are also a risk group Silva *et al.*, (2018).

Incidence and prevalence of People Living with HIV/AIDS (PLWHA) stand out in lack of education, married and heterosexuals males, according to Dantas *et al.*, (2020) study, performed in a reference hospital in Aracaju-SE city. Thus, it has been found that most of the male elders acquire HIV through prostitution intercouses in the city of Recife-PE Araújo *et al.*, (2020), making clear how the contaminations characteristics may vary according to the Brazilian Regions analysis. It was also found that, given the lack of education among the infected elders (as previously mentioned), whilst that directly contributes to low early diagnosis, taking oftentimes years to realize through HIV testing their positive serology. Likewise, as a consequence of the lack of education and consequently information, associated factors related to a bad quality of life has been found, as much as unbalanced nutrition (lower than body requirements), insomnia, sexual dysfunction and elements that involve the psychic and social apparatus on HIV/AIDS related subjects, leading to the infected senior's family and friends unacceptance and preconception, influencing the elderlies to a social distancing/isolation Silva *et al.* (2018). Besides, risks of developing metabolic

syndromes, depression symptoms, low bone and musculoskeletal disorders (osteopenia or osteoporosis associated with low levels of vitamin D), sarcopenia, renal diseases and prevalence of hypertension and HAND (HIV-Associated Neurocognitive Disorder) were found Cabrera *et al.*, (2021).

Furthermore, as mentioned before, the lack of concern with contamination due to the non-use of condoms has a big prevalence among seniors, whereas their self perception of life risk is little or almost none, which may contribute for the Virus dissemination Lima *et al.*, (2018). In the population studied, the lack of education among the infected elders directly contributed to the late diagnosis and the feeling of fear of the exams results. Otherwise, female elders cooperate more with health care, contributing to disease prevention and early diagnosis. Likewise, it is possible to find that patients with early diagnosis have lower mortality rate because of the immediate treatment initiation. Thus, in late diagnosis, 80 years old or over seniors have bigger mortality rate, because of the infection and debility of inherent functional capacity Souza *et al.*, (2021).

Likewise, the advantage of having health care plans focused on specific groups (children, young age, adults and seniors) is noticed, though that is not what the national protocol of HIV/AIDS shows, that is, not differentiating strategies according to the age group that demonstrates the elders vulnerability Titon *et al.*, (2021). Therefore, enhancements on the Brazilian Health care System are visibly needed so it may become better for the PLWHA from the Brazilian Public Health Care System Souza *et al.*, (2021).

The results show that the elders are a rising group and the infected old age males and low education infected elders present a bigger incidence and prevalence of the disease. Despite that, an increasing effort to help this age group is noticed, however, a bigger investment on education is required for demystification of the virus dissemination, since one of the main reasons that predisposes is the low or absence of information about STDs and specifically about the Human Immunodeficiency Virus. Therefore, the doctors must precisely maintain their roles so primary and secondary preventions may occur and consequently decrease negligent infectious processes. Also, it is essential to emphasize the importance of using protective barriers, such as condoms, which drastically reduces the contamination of sexually transmitted infections. Finally, it is clear that the adherence to therapeutic means are decisive for the PLWHA because of the visible improved quality of life and its expectancy. However, it is necessary that new search and collection of relevant data of the elders' HIV infections for expanding information about the virus and AIDS.

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