**Effectiveness of HAART in HIV/AIDS Management**

**Abstract**

This paper examined the effectiveness of Highly Effective Antiretroviral Therapy (HAART) in the management of HIV/AIDS. Data for the study were obtained from secondary sources, particularly peer-reviewed articles. Review of the literature revealed that the Highly Active Antiretroviral Therapy reduced the incidence and mortality rates among HIV-infected persons. However, the success of the HAART depends on the individual’s level of adherence to the drug regimen whereby successful suppression of the HIV viral load was achieved when individuals demonstrated over 95% adherence to the HAART regimen.

Keywords: *HAART (Highly Effective Antiretroviral Therapy), HIV, AIDS, mortality,  incidence*

**Chapter 1: Introduction**

**Statement of the Issue**

This research paper examined the effectiveness of highly active antiretroviral therapy (HAART) in the management of human immunodeficiency virus (HIV) and acquired immunodeficiency syndrome (AIDS). In 2016, the World Health Organization recorded that 35 million people have died since HIV/AIDS was declared as a global health epidemic in the early 1980s (Brites, Netto & Nobrega, 2017). In 2016, approximately 1 million people globally died of HIV/AIDS and the World Health Organization ranked HIV/AIDS as the sixth leading cause of death in the world (Ayalew, 2017). Therefore, there is an urgent need to manage HIV/AIDS to mitigate the disease’s high mortality rates (Ramana, 2014).

The World Health Organization in collaboration with the Centers for Disease Control and Prevention (CDC) approved the antiretroviral (ARV) therapy as an effective method of not only slowing the progression of the HIV virus in the body but also in preventing the onward transmission of HIV virus from infected persons to HIV-negative persons (Ramana, 2014). Since 1996 when antiretroviral therapy was introduced to combat HIV/AIDS, numerous clinical trials have determined that ARV therapy is effective not only at the individual level but also at the population level (Brown et al, 2017). Thus, this research paper examined the effectiveness of Highly Active Antiretroviral Therapy at the individual and population levels.

**Purpose of the Research Paper**

The particular purpose of this paper is to assess the effectiveness of the Highly Active Antiretroviral therapy (HAART) in reducing the incidence and mortality of HIV/AIDS within different populations. This paper relied on secondary literature to gather data that informed the effectiveness of HAART in enhancing the survival and reducing the transmission of HIV virus among men, women and children.

**Research Question**

There is only one question to be answered by this literature review. What is the effectiveness of Highly Active Antiretroviral Therapy in reducing incidence and mortality in the management of HIV/AIDS?

**Chapter 2 – Literature Review**

**Etiology and Epidemiology of HIV/AIDS**

HIV virus was identified in the early 1980s by the Centers for Diseases Control and Prevention (CDC) (Li et al, 2016). Preliminary research indicated that HIV virus first crossed from non-human primates to humans in the early 1920s within Central Africa and has since spread to all continents around the world (Buonomo et al, 2013). HIV virus in humans is transmitted through exchange or transfer of specific bodily fluids including anal and vaginal fluids, blood, and breast milk from a HIV-positive individual to a HIV-negative individual (Ayalew, 2017). Once in the body, the HIV virus primarily targets, attacks and destroys the T lymphocytes which serve as the primary component of the human body’s immune system (Brites, Netto & Nobrega, 2017). Gradual and massive destruction of the T lymphocytes impairs the body’s immune system significantly leading to the advanced stage of HIV called AIDS (Brown et al, 2017). The deficient immune system at the AIDS stage exposes the body to opportunistic infections leading to high mortality (Betancur et al, 2017). The pathogenesis and progression of HIV/AIDS can be mitigated through the use of the antiretroviral therapy (ART) **(Li et al, 2016).**

**Defining Highly Active Antiretroviral Therapy (HAART)**

Antiretroviral therapy (ART) refers to the adherence to a regimen of antiretroviral drugs to slow the progression of HIV virus in the body (Betancur et al, 2017). Antiretroviral drugs do not kill the virus but only suppress the capacity of the virus in attacking and destroying the T lymphocytes (Kakaire et al, 2013). Enhanced effectiveness of the antiretroviral therapy is achieved when different antiretroviral drugs are used in combination (Betancur et al, 2017). Combined use of at least three different types of antiretroviral drugs is referred to as Highly Active Antiretroviral Therapy (HAART) (Brown et al, 2017). Clinically, adherence to the Highly Active Antiretroviral Therapy has been shown to suppress the viral loads of the HIV virus to undetectable levels; hence, allowing HIV-infected persons to enjoy high quality of life (Ramana, 2014). HAART achieves optimal success in suppressing the HIV virus when individuals placed under the therapy maintain the drugs’ regimen adherence of greater than 95% (Ramana, 2014). Low adherence to the HAART regimen increases viral resistance; hence, limiting the therapeutic effectiveness of antiretroviral medication.

**Effectiveness of HAART in regards to Mortality**

Highly Active Antiretroviral Therapy reduces mortality rates among AIDS patients (Brown et al, 2017). A study of 8,661 HIV-infected pregnant women spanning over 8 years found out that the sample of participants placed under the HAART recorded 0.99% maternal mortality within 42 days after delivery compared with 1.1% of maternal mortality for the sample placed under standard Antiretroviral Therapy (Li et al, 2016). At the individual level, Highly Active Antiretroviral Therapy increased the mean CD4+ cell count from 100 cells per m3 to over 370 cells per m3 within six months upon commencement of the HAART (Andrade, 2017). After 12 months of HAART, 71% of patients exhibited undetectable HIV viral loads in their RNA plasma (Brites, Netto & Nobrega, 2017). A combined use of more than three ARV drugs coupled with adherence regimen of greater than 95% suppressed the HIV viral load to undetectable levels among 92% of patients within 12 months (Li et al, 2016).

At the population level, AIDS-related mortality in the UK before the introduction of HAART treatment in 1997 stood at 448 per 10,000 persons. However, the AIDS-related mortality in the UK after the introduction of HAART had dropped to 118 per 10,000 persons by 2012 (Buonomo et al, 2013). Most of the sampled patients under HAART treatment died of non-AIDS diseases including cardiovascular complications and liver disease (Brites, Netto & Nobrega, 2017). However, the sampled studies indicated that the success of the HAART treatment in reducing mortality both at the individual and at the population level depended on the adherence to medication (Brown et al, 2017). Low adherence to the HAART led to viral resistance and eventually increased AIDS mortality (Ramana, 2014).

**Effectiveness of HAART in regards to incidence of HIV Infections**

The effective suppression of the HIV virus in the body during successful HAART regimen reduced the new-onset infection rate within any population. A Chinese study on a population of over 44,000 persons indicated that adherence to HAART regimen reduced the rate of heterosexual transmission of the HIV virus by 92%-98% (Andrade, 2017). Hypothetically, HIV-infected persons with undetectable HIV viral loads have 0% chances of transmitting the HIV virus to an uninfected person (Andrade, 2017). A study of over 800 homosexual and heterosexual couples with differing HIV statuses indicated that adherence to the HAART regimen reduced the risk of HIV transmission to 0.45% per year in case of vaginal sexual intercourse and 1% per year in cases of anal sexual intercourse (Brown et al, 2017). Overall, the Highly Active Antiretroviral Therapy is one of the most effective prevention strategies in the global fight against HIV/AIDS (Brites, Netto & Nobrega, 2017).

**Chapter 3 – Methods and Procedures**

**Method**

There was one method used in the writing of this paper. The method was developmental.

**Procedures**

**Libraries, Databases and Search Engines used**

Libraries used for the search of sources for this paper included the Health Professions Divisions Library at Nova Southeastern University. Online databases used included sciencedirect.com, plos.org, and semanticscholar.org.

**Search Terms**

Several search terms were used to identify sources for this paper. The search terms included HAART (Highly Effective Antiretroviral Therapy), HIV, AIDS, mortality, and incidence.

**Boolean strings used**

Boolean strings were considered for the literature search. Specific Boolean strings used included HAART and HIV/AIDS, effectiveness AND HAART, mortality AND HAART, and incidence and HAART.

**Age of the sources**

Multiple sources were sampled for the study. However, only sources published within the last five years were selected for the final literature review.

**Inclusion criteria**

There were four inclusion criteria for the study. The four criteria included peer-reviewed articles, English-language texts, Web sites relating to health care, and literature published no earlier than 2013.

**Exclusion criteria**

This study adopted four exclusion criteria. The exclusion criteria included non-English language texts, non-peer reviewed articles, literature published before 2013, and Web sites not related to the topic of health care.

**Assumptions**

This paper was written with two assumptions. The first assumption is that the target audience of the paper was of college reading level. The second assumption is that the selected literature was the most current literature available on the topics of HIV/AIDS and Highly Active Antiretroviral Therapy.

**Limitations**

There were three limitations in this paper. The first limitation is that the paper was written to meet the reading level of audience with at least a college level of education. The second limitation is that this paper utilized secondary data. The third limitation is that the contents of this paper were narrowed to the understanding of audience within the health care discipline.

**Delimitations**

Contents of this paper were confined within the scope of using antiretroviral therapy in HIV/AIDS management within the health care discipline. In particular, this paper is confined within the narrow topics of reduced mortality and incidence rates among HIV-infected persons under Highly Active Antiretroviral Therapy.

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