

The epidemic
transmission of hiv
aids - mother to child
and the practice of
treat...



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The Epidemic Transmission of HIV/AIDS – mother to child and the practice of treatment

Introduction

AIDS or the Acquired Immunodeficiency Syndrome is a chronic and serious disease which is caused by the Human Immunodeficiency Virus (HIV) which attacks the immune system and compromises the body's natural and instinctual ability to fight off organisms, bacteria, and other viruses. This disease is largely sexually transmitted and can also be transmitted from mother to child during pregnancy, breastfeeding, and childbirth (US Department of Health and Human Sciences, 2018). It can also be transmitted via blood transfusions or contact with the blood of infected patients. Without maintenance and treatment, this disease can continually compromise the individual's immune system and make him vulnerable to diseases which can then cause his death (US Department of Health and Human Sciences, 2018). At present, this disease does not have any cure, and thus far, it is becoming a global epidemic as more individuals, especially those in developing countries are being afflicted with it. The immune system has a major role in protecting the body from diseases (World Health Organization, 2003). The human body in general has a built-in immune system which is activated every time it is exposed to viruses and bacteria (World Health Organization, 2003). In instances where an individual has AIDS, the human immunodeficiency virus attacks the CD4 cells which make up the immune system (US Department of Health and Human Sciences, 2018). These cells are part of the white blood cells which primarily function to protect the human body from infection. The HIV then applies the actions

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of the CD4 cells to replicate itself. The action is repeated with all the replicated CD4 cells and as the CD4 cells replicate, to weaken the immune system of the body (US Department of Health and Human Sciences, 2018).

Main Body

The signs and symptoms of this disease are very much dependent on the stage of the infection. During its acute stage, the symptoms of the disease include flu-like symptoms in the first one or two months when the virus enters the body (World Health Organization, 2003). Symptoms include: fever, headache, muscle and joint pains, rashes, swollen lymph glands, and painful mouth sores (Mayo Clinic, 2018). The acute stage is the stage where the virus volume is high and it spreads fast through the individual's system and on to the next stage of the disease (Mayo Clinic, 2018). In the second stage of the virus infection, known as the clinical latent infection or the chronic HIV stage, the lymph nodes are persistently swollen and no other signs and symptoms of the disease are noted. The virus stays in the body and continues to infect the white blood cells (Mayo Clinic, 2018). This period is likely to last about 10 years if the patient is not undergoing antiretroviral therapy (Mayo Clinic, 2018).

The third stage is the symptomatic HIV infection stage where the virus multiplies and destroys the individual's immune cells (Mayo Clinic, 2018). As a result, the individual may develop numerous mild or chronic infections including fever, fatigue, swollen lymph nodes, diarrhoea, weight loss, oral yeast infection, and shingles (Mayo Clinic, 2018). With more efficient antiviral treatments, most HIV-positive individuals do not develop AIDS.

Without treatment, HIV can turn into AIDS within 10 years from initial infection (Mayo Clinic, 2018). When AIDS sets in, the immune system is already severely compromised and the individual may be afflicted with opportunistic infections, including pneumonia and tuberculosis, as well as opportunistic cancers (Mayo Clinic, 2018). These may be the immediate cause of death for these HIV-positive patients. In the symptomatic stage of HIV, the signs and symptoms include soaking night sweats, recurring fever, chronic diarrhoea, unusual lesions on tongue or mouth, persistent fatigue, skin rashes, and weight loss (Mayo Clinic, 2018).

Pathogens like *Toxoplasma gondii*, *Cryptococcus neoformans*, and JC virus can cause infections of the brain and spinal cord for HIV positive patients (Chu and Selwyn, 2011). Infections including other malignancies can lead to different neurologic symptoms, mostly associated with the severity of the disease (World Health Organization, 2003). Individuals with solitary lesions mostly have headaches or focal deficits, while patients who have elevated intracranial pressure may experience visual disturbances and nausea (Chu and Selwyn, 2011). Those with meningitis or encephalitis may manifest symptoms like fever, headache, or neck pain (Chu and Selwyn, 2011). Studies indicate numerous deficits which are associated with neurotoxicity and inflammation, mostly among patients with low CD4 counts (Chu and Selwyn, 2011). Impairment can be mild (asymptomatic neurocognitive impairment) to the more severe level of HIV-related dementia (Carillo, Clotet, and Blanco, 2011). In general, these are known as HIV-associated neurocognitive disorders (Chu and Selwyn, 2011). Dementia associated with HIV is associated with cognitive ability domains like memory and

concentration. HIV is also associated with neuropathy such as polyneuropathy and lumbosacral polyradiculopathy (Chu and Selwyn, 2011). Some leg weakness and sensory loss can also be noted, including bladder dysfunction (Chu and Selwyn, 2011). About 50 percent of HIV patients manifest psychiatric and substance abuse issues which are not directly related to infection, but can compromise the quality of life and impact treatment adherence (Chu and Selwyn, 2011). Routine screenings on initial and regular visits are undertaken to detect these neurological impairments.

The virus appears to compromise the cardiovascular system by increasing cytokine levels, as well as causing chronic vascular inflammation as well as endothelial dysfunction (Chu and Selwyn, 2011). With antiretroviral medications as well as infection, vascular effects are further affected by lipid and other metabolic changes (World Health Organization, 2003). Cardiac assessment is undertaken for HIV positive patients based on the National Cholesterol Education Program, Adult Treatment Panel III guidelines with cardiac risk assessment and dyslipidemia recommendations established from these guidelines (Chu and Selwyn, 2011). Other cardiac complications associated with HIV include cardiomyopathy, myocarditis, as well as pericarditis (Chu and Selwyn, 2011).

Pulmonary complications in HIV patients mostly manifest as the presenting symptoms for the disease. Associated symptoms include fever, exertional dyspnoea, and non-productive cough (Chu and Selwyn, 2011). There may be other radiologic findings, but chest radiography results indicate bilateral infiltrates (Chu and Selwyn, 2011). General management is efficient among

patients with mild symptoms or CD4 counts at 200 per mm³ (Chu and Selwyn, 2011). However where no improvements are noted after treatment, more diagnostic tests have to be undertaken with a possible severe pneumonia or even Legionella species diagnosis in mind (Chu and Selwyn, 2011). Pulmonary arterial hypertension, COPD, and lung cancer are some of the other opportunistic infections noted among HIV positive patients in the past few decades (Carillo, Clotet, and Blanco, 2011). While the actual aetiology of HIV-associated pulmonary hypertension has not been established, some vascular changes including fatigue, cough, and oedema have also been noted among patients with HIV infection (Chu and Selwyn, 2011). Electrocardiography and echocardiography tests are early diagnostic tools for HIV-associated pulmonary hypertension. Cardiac catheterization is also used to measure pulmonary pressure and help manage treatment (Chu and Selwyn, 2011). Treatment includes diuretics, digoxin, calcium channel blockers, as well as anticoagulants (Chu and Selwyn, 2011). Combination of antiretroviral therapy effects on the course of the disease including the prognosis of pulmonary hypertension is yet to be fully established. Studies also indicate that HIV is known to accelerate emphysema-associated processes among smoker patients leading to the earlier and increased onset of COPD (Chu and Selwyn, 2011).

On the gastrointestinal system, HIV-related upper digestive issues including candidal infection, dysphagia, and odynophagia have been noted (Chu and Selwyn, 2011). Related health issues include aphthous ulcers as well as oral ulcers from cytomegalovirus or herpes simplex virus for patients reaching CD4 counts of 200 per mm³ or less (Chu and Selwyn, 2011). Diagnosing

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these diseases is possible through a histologic assessment following biopsy. Routine tests for oropharyngeal cancer are important for HIV patients as this health issue is common among HIV patients (Chu and Selwyn, 2011). Assessing gastrointestinal complications is mostly undertaken to measure immunosuppression and the quality as well as duration of symptoms (Carillo, Clotet, and Blanco, 2011). Diarrhoea is one of the common afflictions among HIV patients with about 40% of patients reporting experiencing at least one episode of diarrhoea in the past month (Chu and Selwyn, 2011). The virus attacks the intestinal cells and disrupts the motility of the gastrointestinal tract via the autonomic nervous system, causing HIV-associated enteropathy (Chu and Selwyn, 2011). Inflammatory bowel disease occurs with increased frequency among individuals with HIV infection.

Summary

The immune system has a significant role in maintaining an individual's health. The body, specifically the white blood cells, undertake the necessary processes to prevent the body's systems from being compromised by bacteria, viruses, as well as other sources of infection. The immune system is more or less the body's natural response to infection and even without medications, the immune system can prevent infections and ensure the well-being of the individual. HIV-AIDS is an infection which attacks the body's immune system, compromising its natural ability to fight off infection (Carillo, Clotet, and Blanco, 2011). New strategies for prevention of the disease are mostly focused on health education in schools and in work places. This also seems to include regular medical screening in work places in order to promote early detection and management (Carillo, Clotet, and <https://assignbuster.com/the-epidemic-transmission-of-hivaids-mother-to-child-and-the-practice-of-treatment/>

Blanco, 2011). New forms of treatment include immunology studies, primarily towards studying the behaviour of the virus and establishing how such behaviour can be delayed from progressing and how its impact on the individual can be reduced (Carillo, Clotet, and Blanco, 2011). These are strong directions in treatment and management, but more studies are needed in order to secure improved patient outcomes.

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