

## Relationship Between Patients Showing Multiple Lymphadenopathy (MLA) and HIV Infection in Onitsha Metropolis with Respect to Occupation

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**Abstract:** Four hundred and seventy eight (478) individuals who exhibited some manifestation of chronic and debilitating illness including persistent cough, skin cancer and dermatitis, multiple lymph adenitis, diarrhea and enteritis, genital sore, urethritis, vaginitis and weight loss, were examined to establish relationship between human immune-deficiency virus (HIV) infection and multiple lymph adenopathy (MLA) and HIV infection. Statistical comparison of MLA in HIV positive individuals in the study with respect to occupations showed no significant difference in all the occupations except among students where there was significant difference in MLA occurrence with more M LA in HIV positive students.

**Key words:** Occupation • HIV infection and Multiple lymphadenopathy

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### INTRODUCTION

Multiple lymph adenopathy (MLA) was rare before HIV epidemic [1]. It occurred mainly in lymphomas, patients with congenital or acquired hypoglobulinaemia and Epstein Bar Virus infection [2]. Infection by HIV renders their victims immuno-incompetent resulting in proliferation of opportunistic infection that overwhelms the lymphatic system which is part of antibody generating mechanism leading to axial, cervical and inguinal enlargement [3-6]. The study aimed at establishing or not, a relationship between multiple lymphadenopathy and HIV with respect to occupation.

HIV is a member of the genus *Lentivirus*, part of the family *Retroviridae*. *Lentiviruses* have many morphologies and biological properties in common. Many species are infected by *lentiviruses*, which are characteristically responsible for long-duration illnesses with a long incubation period. *Lentiviruses* are transmitted as single-stranded, positive-sense, enveloped RNA viruses. Upon entry into the target cell, the viral RNA genome is converted (reverse transcribed) into double-stranded DNA by a virally encoded reverse transcriptase that is transported along with the viral genome in the virus particle. The resulting viral DNA is then imported into the cell nucleus and integrated into the cellular DNA by a virally encoded integrase and host co-factors. Once integrated, the virus may become latent,

allowing the virus and its host cell to avoid detection by the immune system [7, 8 and 9]. Alternatively, the virus may be transcribed, producing new RNA genomes and viral proteins that are packaged and released from the cell as new virus particles that begin the replication cycle anew [10-12].

AIDS is a condition in humans in which progressive failure of the immune system allows life-threatening opportunistic infections and cancers to thrive. Without treatment, average survival time after infection with HIV is estimated to be 9 to 11 years, depending on the HIV subtype. Infection with HIV occurs by the transfer of blood, semen, vaginal fluid, pre-ejaculate, or breast milk. Within these bodily fluids, HIV is present as both free virus particles and virus within infected immune cells [13-15].

HIV infects vital cells in the human immune system such as helper T cells (specifically CD4<sup>+</sup> T cells), macrophages, and dendritic cells. HIV infection leads to low levels of CD4<sup>+</sup> T cells through a number of mechanisms, including apoptosis of uninfected bystander cells, direct viral killing of infected cells, and killing of infected CD4<sup>+</sup> T cells by CD8 cytotoxic lymphocytes that recognize infected cells [16-18]. When CD4<sup>+</sup> T cell numbers decline below a critical level, cell-mediated immunity is lost and the body becomes progressively more susceptible to opportunistic infections.

Two types of HIV have been characterized: HIV-1 and HIV-2. HIV-1 is the virus that was initially discovered and termed both LAV and HTLV-III. It is more virulent, more infective and is the cause of the majority of HIV infections globally. The lower infectivity of HIV-2 compared to HIV-1 implies that fewer of those exposed to HIV-2 will be infected per exposure. Because of its relatively poor capacity for transmission, HIV-2 is largely confined to West Africa [19, 20].

### MATERIALS AND METHOD

**Sampled Population:** Individuals under study were four hundred and seventy eight (478), some showed multiple lymph nodes at axial, cervical and inguinal regions, others showed only signs and symptoms of HIV including weight loss, diarrhea, persistent fever and malaise. They were referred patients from Government General Hospital and Private Hospitals and Patients coming to FEZI Medical Laboratory by references.

**Sample Collection:** Samples for HIV infection; ELISA, Western blot analysis, CD4 Count were taken and examined by method of Awita *et al.*, 1975 [1]. All individuals under test were examined clinically for presence or absence of lymph nodes at the cervical, axial and inguinal regions supervised by a Consultant Physician, Dr. P. Obiegbu (Director of Health, Anambra State).

**Analysis of Samples:** HIV (ELISA) and Western blot confirmatory tests were done by the Kits and methods of

Earyou Diagonistics Ashdod, Israel and BioRad Novo Patch, Immunoblot, Paris France. The four hundred and seventy eight individuals were physically examined by a consultant physician.

Pictures of the lymph nodes enlargements were taken by means of Camera. Records of occupational status were taken as described. A statistical analysis of values of prevalences of MLA in HIV positive and negative individuals were carried out at  $P \leq 0.05$  with respect to occupation.

### RESULTS

**Multiple Lymph Adenopathy HIV Infection:** Students recorded highest prevalence rate 7.08%, next was professionals e.g Lawyers and Engineers etc. 1.18%. Other occupational classes recorded 0.59% each viz Senior Executive officers, technicians, clerical officers Professional drivers, Traders and Farmers scored nil.

**Multiple Lymph Adenopathy Without HIV:** Students again scored highest prevalence 0.96% followed by Traders 0.64% and next was Professional drivers 0.32% others did not score.

A statistical comparison of MLA in HIV positive and negative individuals in the study with respect to occupation showed no significant differences in all the occupations except among students where there was significant difference in MLA occurrence with more MLA in HIV positive students.

Table 1: Distribution of Multiple Lymph Adenopathy among HIV Positive and Negative Individuals in Onitsha and Their Relationship with Respect to Occupation

Factor Occupation	HIV Positive				HIV Negative		Chi.sq. value	Sig. At $P \leq 0.05$
	Total no. of cases divided by total no. of tested	% Prevalence	Total no. of HIV positive	Total no. of cases divided by total no. of tested	% Prevalence	Total no. of HIV negative		
S. Exec.	$\frac{1}{27}$	3.7		$\frac{0}{27}$	0		2.06	No sig.
Prof.	$\frac{2}{37}$	5.4		$\frac{0}{37}$	0		2.02	No sig.
Tech.	$\frac{1}{89}$	1.12		$\frac{0}{89}$	0		1.06	No sig.
Traders	$\frac{0}{79}$	0		$\frac{2}{79}$	2.53		2.026	No sig.
Clerical officers	$\frac{1}{65}$	1.54		$\frac{0}{65}$	0		1.008	No sig.
Prof. drivers	$\frac{1}{47}$	2.13		$\frac{1}{47}$	2.13		0	No sig.
Farmers	$\frac{0}{42}$	0		$\frac{0}{42}$	0		0	No sig.
Students	$\frac{12}{92}$	13.04		$\frac{3.26}{42}$	3.26		5.88	Sig.
Total			169			309	498	

There was significance difference in occurrence of MLA in HIV positive and negative for students only. Other occupational groups showed no significant difference.

## DISCUSSION

Students recorded highest prevalence in both HIV positive and negative individuals 13.04% and 3.25% respectively. Other professional groups recorded low figures viz senior Executive officers 3.7%, Professionals 5.4%, Technicians, traders and farmers recorded zero for HIV positive. Multiple lymph adenopathy appears to be a disease for students in both HIV positive and negative situations with respect to this study. There was no significant difference in MLA disease in HIV positive and Negative for all the professional groups except students that recorded more MLA in HIV positive.

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