Original article

Scenerio of HIV patients reported to University Kebangsaan Medical Centre during 2006-2009

Rahman MM[1], Ken WK[2], Norzuriza MR[3], Isahak I[4], Azura SS[5], Tzar MN[6]

Abstract

Objective: A study was undertaken to identify the HIV-positive cases from suspected patients reported to University Kebangsaan Malaysia Medical Centre (UKMMC) from January, 2006 to December; 2009. ***Methods:*** Cases were identified and confirmed by three established sero-diagnostic tests: Micro particulate Enzyme Immunoassay, Passive Particle Agglutination Test and Line Immunoassay. ***Results:*** A total of 256 HIV positive patients were identified and highlighted about their age, sex, ethnic origin and year wise distribution of cases. Frequency distribution of HIV-positive cases among different age groups indicated that, 144 (%) were aged between 21 to 40 years, 81 (%) were aged 41 to 60, 19 (%) were aged above 60 and 12 (%) were in the age group of 0-20 years. It revealed that the highest number of HIV-positive patients was in the age group of 21-40 years. Among the 4 groups of people living in Malaysia, HIV infection was found more in Chinese community (101), followed by Malaya community (97), Other community (Sikhs, tribes, foreigners) living in Malaysia (30) and Indian community (28). A total of 179 male and 77 female were positive for HIV infection. Monthly records of case detection indicate more or less similar prevalence pattern throughout the study period. ***Conclusions:*** It reveals from the report that the Malysian patients are mostly infected at the adulthood unlike other countries where majority of infections occur in young age .A high percent of HIV infection in males in the country indicates that they might played a vital role in carrying and disseminating infectiions to their female parterners.

Keywords: HIV/AIDS, Sero-diagnosis, Socio-demographic profile, Malaysia.

Introduction

Human immunodeficiency virus (HIV) is a member of the Retroviridae family causes acquired immunodeficiency syndrome (AIDS). The virus produces a condition in humans in which the immune system begins to fail, leading to life-threatening opportunistic infections. 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. The four major routes of transmission are unsafe sex, contaminated needles, breast milk, and transmission from an infected mother to her baby at birth (perinatal transmission). Screening of blood products for HIV has largely eliminated transmission through blood transfusions or infected blood products in the developed world.[1]

HIV infection in humans is considered pandemic by the World Health

1. *MM Rahman, PhD (India), Postdoc. Virology (Taiwan);
2. WK Ken, MSc Medical Microbiology (UKM);
3. MR Norzuriza, BSc Technology Biomedical (UM);
4. I Isahak, MD, MSc Medical Microbiology (UK);
5. SS Azura, MD, MPath (Microbiology) (UKM);
6. MN Tzar, MD, MPath (Microbiology) (UKM);

Department of Medical Microbiology and Immunology, Medical Centre, Faculty of Medicine, University Kebangsaan Malaysia, Cheras-56000, Kuala Lumpur, Malaysia.

Corresponds to:** Dr. MM Rahman, Department of Medical Microbiology and Immunology, University Kebangsaan Malaysia, Medical Centre, Cheras-56000, Kuala Lumpur, Malaysia. ***Email: mmr@ppukm.ukm.my, mostabau@yahoo.com.

Organization . From its discovery in 1981 to 2006, AIDS killed more than 30 million people.[2]

Each minute, five new persons get infected with HIV, and the virus kills young people, found in their productive period. About 3.3 million people with HIV die annually. Sixty eight million people could die from 2000 to 2020. In developed world, 58% of the new cases are drug addicts who share syringes, and 33% are infected through unprotected sexual contacts, but in undeveloped countries, it is mainly transmitted through unprotected sex and blood transfusions.28 million of the HIV infected people are found in Africa and 0.5 million in Western Europe; 300,000 in Eastern Europe, 600,000 in Eastern Asia and Oceania; 2.6 million in America.[3]

World Health Organization (WHO) released their annual figures for World AIDS Day in 2009. They said that at the end of 2008 there were 33.4 million people living with HIV. In 2008 there were 2.7 million new infections and 2 million HIV-related deaths. The vast majorities of HIV infected people, more than 30 million, live in low and middle-income countries; according to the World Health Organization.[4]

Most untreated people infected with HIV eventually develop AIDS. These individuals mostly die from opportunistic infections or malignancies associated with the progressive failure of the immune system. HIV progresses to AIDS at a variable rate affected by viral, host, and environmental factors; most will progress to AIDS within 10 years of HIV infection: some will have progressed much sooner, and some will take much longer.Therefore ,it is prerequisite to identify the virus at the early stage of infection so that proper antiretroviral therapy can be given to the patients[5]

The present research article is aimed at to identify the samples collected from suspected HIV patients and highlighted the scenario of the patients: age, sex, and community and year wise distribution.

Materials & Methods

Specimen collection: Blood samples collected from the suspected patients during January 2006 to December, 2009 reported to UKM medical Centre were immediately sent to the laboratory of the Department of Medical Microbiology & Immunology, Faculty of Medicine, National University Malaysia, Cheras-56000, Kuala Lumpur, Malaysia.

Ethics approval: It has been approved by the ethics committee of the medical faculty and hospital.

Samples processing: All the samples were kept for sometime for clotting and sera were collected in vials after centrifugation and then used in the following test proper:

Test 1: Micro particulate Enzyme Immunoassay (MEIA)

The test was performed with the kits of Abbott Axsym system HIV ½ go REF3D41-22, B3D4A0, 36-63881/R3. The kits were provided with :Anti-Biotin(Rabbit) Alkaline phosphatase, Conjugate in tris buffer, HIV-1 and HIV-2 antigen coated microplates in tris buffer, Biotinylated HIV-1 and HIV-2 antigens in tris buffer, Specimen diluent in tris buffer and Positive and Negative control of HIV-1 and HIV-2 antigens.

The test was performed as per the method described by the manufacturer.[6] The presence or absence of antibodies toHIV-1 and or HiV-2 in the samples is determined by comparing the rate of formation of fluorescent product to the cut off rate which is calculated by axsym HIV-1/2 index calibration. The rate of formation of fluorescent product in the sample is grater than or equal to the cutoff rate, the sample is considered reactive for anti-HIV.

Test 2: Passive particle –Agglutination Test for detection of Antibodies to HIV-1 and or HIV-2

The test was performed as per the procedure described by **SERODIA- HIV-1/2.** The kits contain sample diluent, HIV sensitized particle, HIV-1 sensitized particles, HIV-2 sensitized particles, unsensitized particles and positive control. Agglutinated particles spread out covering the bottom of the well uniformly considered positive. Specimens showed inconclusive results were retested.

Test 3: INNO-LIA HIV 1/2 Score: Line immunoassay (LIA)

The test was performed as per the procedure described in the Kits of INNOGENETICS (Biotechnology for healthcare): The test confirmed the presence of HIV1/2 in the specimens if found discrepancy of the above two tests.

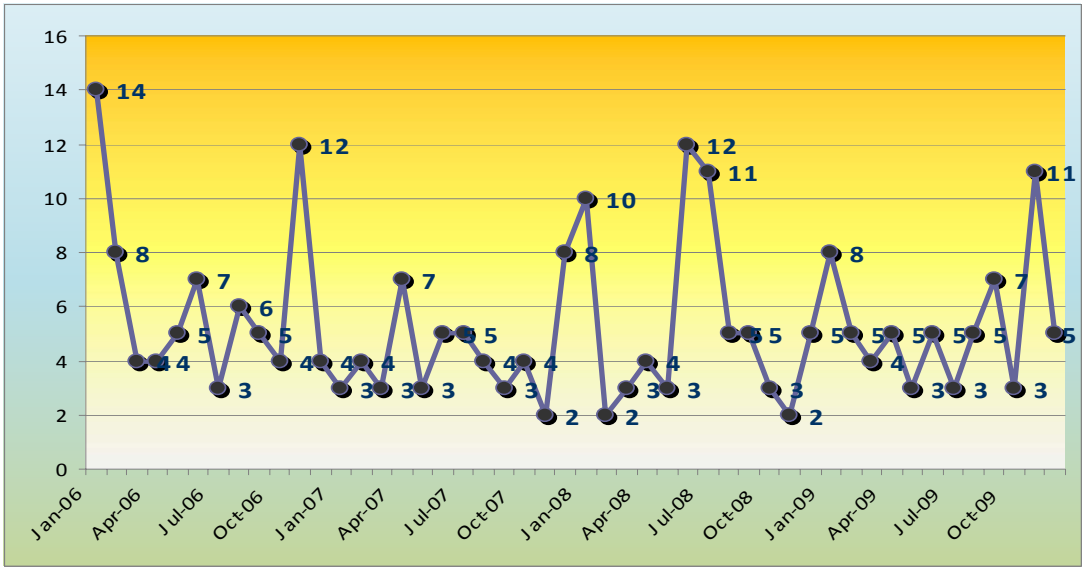

Figure-1: Month and year wise Scenario of HIV positive cases during January 2006-December 2009

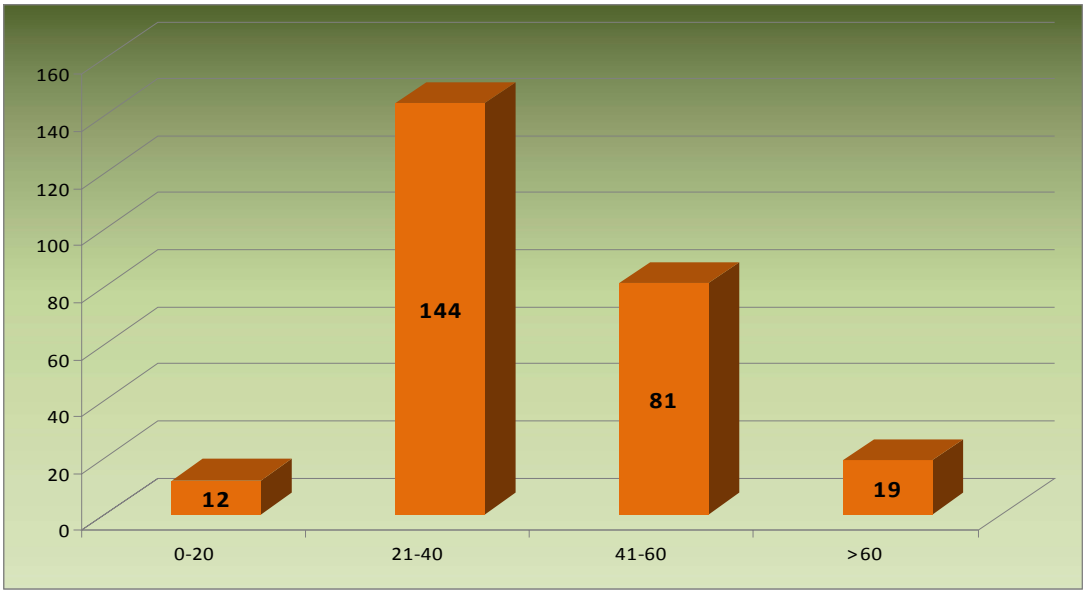

Figure-2: Scenario of HIV positive cases in different age groups during January 2006-December 2009

Results and Discussion

During the period of January 2006 to December 2009 a total number of 256 specimens were confirmed for HIV infection from the samples those were suspected to analyze for the purpose.

It was observed from the scenario of HIV infections from monthly data of the laboratory that the prevalence of HIV infection starting from January 2006 to December 2009(Fig-1) going on in a same patterns with a little variation in different months. Therefore, HIV infection due to seasonal variation has little or no impact. It is observed from the figure that the prevalence of the infection tended to declined at the end of December, 2009.It might be due to creation of awareness among the people due to mass media propaganda for the fatal effect of HIV and AIDS. Due to paucity of published reports of seasonal effect on HIV infection our data generated in the present study could not be compared.

Malaysian AIDS Council and AIDS foundation[7] reported from the surveillance data on HIV and AIDS and mentioned that a total 86,127 HIV infections were reported to the Ministry of Health, Malaysia up to June 2009.

The council reported that in Malaysia, the first HIV case was reported in 1986. Since then, the number of cases continued to increase with the highest number recorded in 2002 at 6,978 - a notification rate of 28.5 cases per 100,000 populations. There was a decrease in the number of HIV cases in the year 2003 where 6,756 cases were reported and that were less than the record of 2002. The number and rate of notification continued to decrease to 13.3 cases per 100,000 populations (3,692 cases) in 2008. The period between January and June 2009, a total of 1,497 HIV cases were reported. The Ministry of Health forecasts that until the end of 2009, the estimated rate of HIV notification would be 10.0 cases per 100,000 populations in Malaysia. [7]

The present study correlates with the above report, it reveals from the Fig-1 that at the end of December 2009 a declining trend of HIIV prevalence was observed.

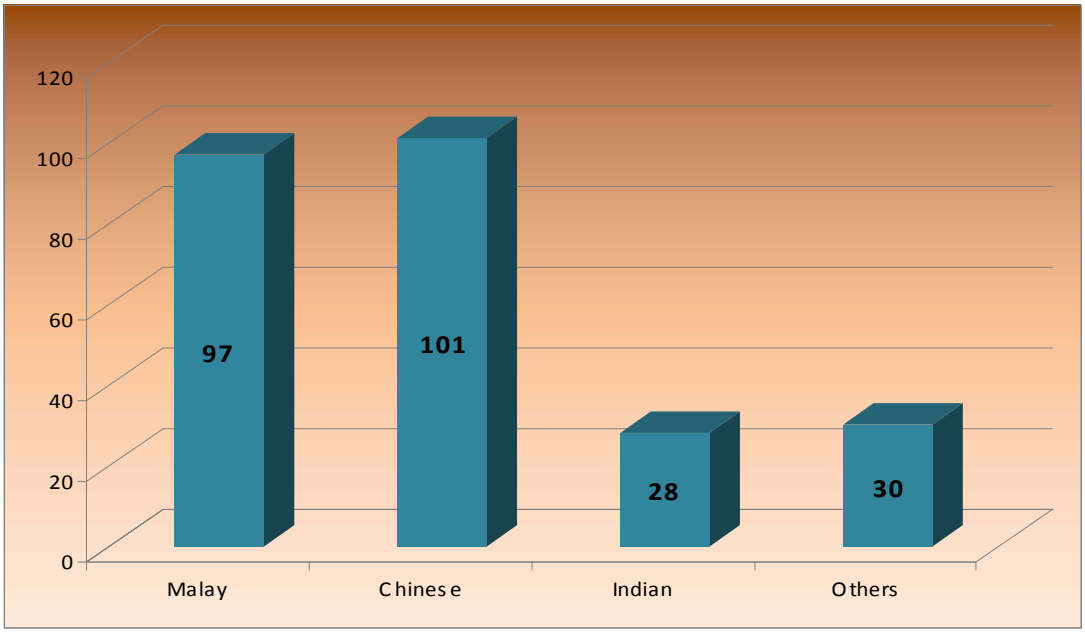

Figure-3: Scenario of HIV positive cases in different community during 2006-2009

HIV positive samples were classified according to different age groups (Fig-2). It was observed from our results that out of 256 patients' samples those were proved to be positive for HIV infections 144 were aged between 21 to 40 years, 81 were aged 41 to 60, 19 were aged above 60 and 12 were in the age group of 0-20. It reveals (Fig-2) that the highest number of patients(144/256) showing HIV infection in the age group of 21-40.This scenario gives an idea about the vulnerable ages for the picking up of HIV infections in Malaysia. The present report agrees with the recently published report of global fact book.[8] In the report it was observed that during 2009 and 2010 among the HIV and AIDS affected patients 50% were adult (aged 15-49).The adult prevalence rates of HIV and AIDS were 23.9% in Botswana, 23.2% in Lesotho, 18.1% in South Africa, 15.3% in Zimbabwe and 15.3% Namibia. Comparing the above reports high rate of HIV infections are recorded in adult population in Malaysia.

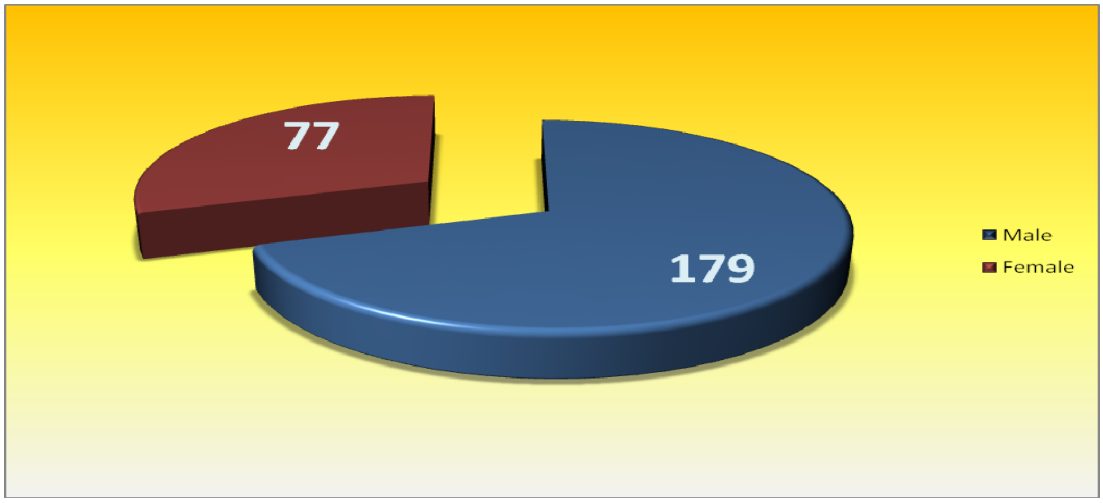

Figure-4: Scenario of HIV positive cases in male and female during 2006-2009

A report from International AIDS conference held at Vienna July, 2010 pointed out that in Thailand 22% of men were HIV-positive at baseline but were generally unaware of their infection. After three years of study, another 135 men had acquired HIV. In a 12-month period, the annual rate of HIV acquisition (incidence) was 5.9 per 100 person years. This did not vary between years 1, 2 or 3 of the study. The mean age at sero-conversion was 26.4, and the median was 26. "This means that 50% of the men who became infected during follow-up were younger than 26 years, and they observed a quite large number of cases where men got infected when they were 18 or 19 years of age. In the report men were found to be the most vulnerable to infection when they were younger – men who did not acquire HIV at a young age were less likely to acquire it when they are older. In the study they pointed out that prevalence relates to an infection acquired at any time in the past, so older men were more likely to have prevalent HIV. A man aged 30 or over was three times more likely to have prevalent HIV than a man aged 18 to 21.On the other hand, incidence refers only to newly acquired infections. A man aged 18 to 21 was also almost three times more likely to have incident HIV than a man aged over 30[9].

HIV infections scenario in terns of community during 2006 to 2009 has been presented in Fig-3.It reveals from the results that among the 4 groups of people living in Malaysia HIV infection was found more in Chinese community (101),

next is Malaya community (97) next other community (foreigners) living in Malaysia and lowest the Indian community (28).The highest prevalence HIV infections in the Chinese community might me due to their adaptation with western life style. On the other hand, the Malay community is Muslims and most of them are practicing which prevents them to pick up HIV infections. However, the present report varied from the statistical data of Malaysia from 1986 to 2008 where Malaya community was the highest recorded HIV and AIDS sufferers.[7]

Henry Bauer[10] described HIV infection relating to community and race discrimination of HIV is unique, not only as an infection that discriminates by race; it's unique as a sexually transmitted infection that discriminates by race. He mentioned that no other sexually transmitted infection has managed to be quarantined geographically and racially in this way. The evidence is simply overwhelming: from every tested social group, high-risk as well as low-risk; from every part of the world; for both sexes and at all ages—wherever "HIV" tests are reported separately by race in any given sample, the tendency to test "HIV"-positive is paralleled by racial ancestry.

In another report from USA on adults and adolescents those were diagnosed of HIV/AIDS in the 34 states with confidential name-based HIV infection reporting, 50% were black/African American, 29% were white, 18% were Hispanic/Latino, 1% each were Asian and American Indian/Alaska Native, and less than 1% were Native Hawaiian/other Pacific Islander.[11] Reports on the racial affiliation of HIV infections are described above are inclusive; it depends on the sexual habit and awareness.

It is observed from Fig 4, out of 256 samples found positive during 2006 to 2009, HIV positive infections were 179 male and 77 female in different age groups. It is observed from the Fig 4 that male might have played a vital role for carrying HIV infection and disseminating it to the female partner.

More than half of women who have HIV got the infection from sexual partners. A woman can be infected by contact with a man or contact with another woman. When a woman has sex with an infected man, she has a high risk of getting HIV if a condom is not used properly.[12]

In Malaysia HIV infections occur mostly in intravenous drug users [7] and almost all drug users are male, this might be the reason of being higher prevalence of HIV infection in male than female.

In our report though female are less infected by HIV, however, report of Michel Sidibé, Executive Director of UNAIDS[11] mentioned that AIDS 'This epidemic unfortunately remains an epidemic of women." He also mentioned that at the end of 2008 it was estimated that out of the 31.3 million adults worldwide living with HIV and AIDS, around half are women. It was mentioned that 98 percent of these women live in developing countries The AIDS epidemic has had a unique impact on women, which has been exacerbated by their role within society and their biological vulnerability to HIV infection. In his report it was also pointed that generally women are at a greater risk of heterosexual transmission of HIV. Biologically women are twice more likely to become infected with HIV through unprotected heterosexual intercourse than men. In many countries women are less likely to be able to negotiate condom use and are more likely to be subjected to non-consensual sex.

In Malaysia HIV transmission occurred by intravenous drug users during 1986 to 2008 were 58, 1358.[7] It is the highest transmission source next to heterosexual

transmission. In a report from the government agency pointed out that Malaysia is poised to achieve the "Millennium Goal" set by the United Nations of stopping the spread of HIV/AIDS and reducing infant and mother mortality by the end of the decade.

In a recent report Malaysia has recorded a significant drop in the number of HIV cases due to the government's implementation of various initiatives and awareness programmes[14].

In a report[14] it is mentioned that Malaysia recorded a significant drop last year as 3,080 cases per 100,000 population were recorded (10.8%) compared with 21.7% in 2000 based on the Millennium Development Goals (MDG) report. The report added that though the target of MDG was to reduce the number of new HIV cases to 11% per 100,000 population by 2015, Malaysia has been able to achieve that target six years ahead.The government, through government agencies and non governmental organisations had carried out 55 medium and long term HIV and AIDS awareness programmes over the past five years, she mentioned that of 2009, 87,710 HIV cases reported, in which, 74,316 were still alive, 15,317 or (17.5%) are AIDS cases while 13,394 (15.3%) have died. Total number of infected cases were Malays topped the list with 62,953 cases, Chinese (12,887), Indians (6,929), Bumiputra Sarawak (2,200), Bumiputra Sabah (630), others (478), foreigners (1,298) and the of 535 cases has yet to be determined.[14]

The present paper highlighted the scenario of HIV positive patients reported to UKMMC based on laboratory detection of HIV. The detection was confirmed by three tests, if any discrepancies occurred in 1st and 2nd tests then 3rd test was performed to be reconfirmed. It reveals from the report that the Malaysian patients are mostly infected at the adulthood unlike other countries where majority of infections occur in young age that are carried to adulthood period.

It is expected that recent awareness created by Malaysian government may help reduce the number of HIV and AIDS cases in the forthcoming years.

Authors Contribution

All the authors worked in a team to formulate, execute and finalized the research works.

Ethical approval

The Laboratory of the Department of Medical Microbiology & Immunology is an accredited laboratory for the diagnosis of diseases from the samples received from the University Kebangsaan Malaysia Medical Centre, UKM, Malaysia. Therefore it does not need separate approval from Ethical committee.

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