Identification of HIV virus in Najaf city, Iraq

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Abstract

Acquired Immune Deficiency Syndrome (ADIS) is a disease of the human immune system that results in a decline in the efficiency of the human immune system step by step to leave people exposed to many infections and tumours. It caused by the Human Immunodeficiency Virus (HIV). The first appeared of HIV in West Central Africa in the late 19th or early 20th century. The direct contact from personal mucus membrane or bloodstream and physical fluid (blood, vaginal semen fluid and breastfeeding milk) containing the virus is the unique viral transmission route. Out of 80 blood samples were taken from different areas of Najaf city, Iraq, for ages from 20 to 60 years (males and females) to the period from 1/1/2019 to 19/12/2019. The surface antigen of the HIV was detected by the ELISA technique and mini VIDAS by a virus-specific kit. Out of 80 different patients by physical examination infected with ADIS: HIV viruses were the most incidences with 12 isolates (15%) while, there were 66 isolates (82.5%) were belonged to other infections and two strains (2.5%) were negative to any viral infection.

INTRODUCTION

Acquired Immune Deficiency Syndrome (ADIS) is a disease of the human immune system that results in a decline in the efficiency of the human immune system step by step to leave people exposed to many infections and tumours. It caused by the Human Immunodeficiency Virus (HIV) (Youssef et al., 2019; Hamzah and Aljanaby, 2020). The direct contact from personal mucus membrane or bloodstream and physical fluid (blood, vaginal semen fluid and breastfeeding milk) containing the virus is the unique viral transmission route (Valero et al., 2018). This virus can then be transmitted through unsafe sexual intercourse, whether anal, vaginal or oral, through blood transfusion, through injection needles contaminated with the virus, or it can be transmitted from the mother to fetus during pregnancy or childbirth (Patel et al., 2014). Human Immunodeficiency Virus is affecting the immune system components such as helper T cells, phagocytes and dendritic cells, this virus directly or indirectly destroys CD4+ T lymphocytes, which number less than 200 per millilitre of blood, cellular immunity is absent (Woodham et al., 2016). Severe HIV infection progresses over time, and the disease progresses to the underlying clinical infection of HIV (Okoye and Picker, 2013). The ADIS divided into three stages as follows

The first stage
Rarely shows any signs or signs of the disease, but the patient may develop flu-like symptoms, that depends on a trigger of the disease, after two weeks
this symptom disappeared in most cases, then, lymph nodes swelling and rash may occur (Hightow-Weidman et al., 2009).

The second stage
This period is not limited to a definite time; it varies from patient to patient and ranges from a year to less than ten years. Still, in this period the virus has been able to destroy the free physical significantly, at this stage, some symptoms like severe diarrhoea, the rapid loss of weight, high body temperature, and shortness of breath (Burton et al., 2002).

The third stage
The last stage of this virus infection, the most severe symptoms begin to manifest in the human body, are susceptible to various cancers and acute pneumonia. Still, the long-term symptoms that accompany the disease can be eliminated, strange lesions in the tongue and oral cavity, permanent cold or permanent fever and excessive night sweat (Zhang et al., 2019).
Figure 3: Age groups of HIV infections

Figure 4: Geographical Distribution of HIV infections
MATERIALS AND METHODS

Collecting samples
Out of 80 blood samples were taken from different areas of Najaf city, Iraq, for ages from 20 to 60 years (males and females) to the period from 1/1/2019 to 19/12/2019. Up to 5 ml of venous blood was taken from each person, and a test tube was placed, then the serum was separated from the blood by a centrifuge 3000 rpm for 3 minutes and then placed in a marked Eppendorf test tube and stored at -20 ° C.

Detection and Confirmation of viral HIV
The surface antigen of the HIV was detected by the ELISA technique and mini VIDAS by a virus-specific kit. The ELISA test was accomplished in Public Health Laboratory, Najaf. The conformational analysis is depending on the western blot technique carried out in Central Public Health Laboratory, Baghdad.

Statically analysis
Statically analysis was done according to percentages to compare between all samples using graph-pad prism computer software (Majeed and Aljanaby, 2019).

RESULTS AND DISCUSSION

Total viral isolates
Out of 80 different patients by physical examination infected with ADIS: HIV viruses were the most incidences with 12 isolates (15%) while, there were 66 isolates (82.5%) were belonged to other infections, and two strains (2.5%) were negative to any viral infection as shown in Figure 1.

Patients
The results of the present study proved that out of 12 patients infected with HIV, there were eight patients (67%) were males, and four patients (33%) were females as shown in Figure 2.

Age groups
According to age groups, the results demonstrated that the age group 20-40 years old was the most prevalent range among patients infected with HIV (7 patients 59%, five male and two females) followed by age group 41-60 years old (5 patients 41%, four males and one female) as shown in Figure 3.

Geographical Distribution
The HIV was a high incidence in Najaf cty (9 patients 75%, five male and four female) followed by Kufa District (3 patients 25%, two males and one female) as shown in Figure 4.

Acquired Immunodeficiency Syndrome (AIDS) is a chronic immunodeficiency that can result in the death from attacking by HIV. HIV attacks the immune system and influences the capacity of the skin to prevent pathogens.

HIV is a sexually transmitted infection. It may also be transmitted through communication with contaminated blood or mother-to-child during labour, breastfeeding or lactation. HIV may take years to weaken the immune system to the point where you have AIDS (Bertozzi et al., 2006).

There is no solution for HIV / AIDS, but there are medications that can delay the progression of the disease dramatically. The study result proved that there are 15% of tested samples were HIV positive, this result was in agreement with the study by (Jaspen et al., 2008) in Cape Town, South Africa, the positive result was 15%, while, the current study result was different with a study by (McCormick et al., 1987; van der Hoek et al., 1995) the positive result in the study was 77% and 67% respectively. Males and females are exposed to AIDS with certain conditions of lack of prevention or malpractice. The current study showed that the incidence of HIV for males (67%) was higher than females (33%), this result was incompatible with the study by (Landman et al., 2008), in America that he showed (55%) of positive isolates were females. Also the European study, 1992, proved that the female was more infected than male (Duriux-Smith et al., 1992), this difference in result may be due to males in our locality has more exercise than females, like barber, gem, and tattoos, and extra while a female has less activity and are more conservative.

According to age groups, the results demonstrated that the age group 20-40 years old were the most prevalent range among patients infected with HIV (7 patients 59%, five males and two females) followed by age group 41-60 years old (5 patients 41%, four males and one female), this result is in agreement with the study in Spain, 2012, that proved the ages between 20-40 years were more infected with HIV (Blanco et al., 2012), while the study by (Becker et al., 2004) showed that the prevalence of HIV is higher in ages older than 50 years.

The HIV pandemic has seen an increase in cases in the past 30 years and the early 1980s, with 3.7 million new infections, new infections, and AIDS-related deaths in the 2000s (Marty et al., 2018). In 2012, approximately 9.7 million patients were utilizing antiretroviral drugs (ART) in low and middle-income countries (ART) (Fettig et al., 2014). The present study result demonstrates that the incidence of HIV positive cases was inside the city more
than the outsides, this result agreed with a study in Paris, 2018, that proved the rate of HIV positive results was inside of city (Volmink and Marais, 2008; Hayder and Aljanaby, 2019) this is maybe due to the needs of some patients like dentists clinics, dialysis and blood transfusion.

CONCLUSIONS

The higher prevalence of HIV was in Najaf city in male with age groups between 20-40 years old. The present study result proved that the incidence of HIV positive cases was in the urban area more than a rural area; this is maybe due to that there were more visitors from other countries and may be due to needs of some patients like dentist’s clinics, dialysis and blood transfusion.

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Author’s contributions

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Competing Interest

There was no any competing interest in this work.

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