CASE REPORT

FALSE POSITIVE HIV TEST IN LOW PREVALENCE REGION: PAKISTAN

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The prevalence of HIV in Pakistan is less than 0.1%, but is feared to be spreading among the general population rapidly. Screening tests for HIV is based on antibody detection. There seems to be little knowledge regarding the interpretation of HIV results among the population. Most often the patients are being issued a positive HIV report based on single screening test when in fact it should be confirmed before issuing a positive HIV result. There is a lot of stigma associated with the disease in Pakistan, on the other hand the test is done mostly without counselling services hence causing physical and mental trauma to the patients.

Keywords: HIV, false positive, Pakistan, AIDS, ELISA

INTRODUCTION

Human immunodeficiency virus (HIV) is a retrovirus responsible for causing AIDS epidemic globally. It continues to be a major threat worldwide. UNAIDS estimates that there were 33.3 million [31.4–35.3 million] people living with HIV at the end of 2009,[1] many of the people being unaware of the disease and its mode of transmission. Developing countries have been severely affected by the disease.

Pakistan has entered concentrated epidemic phase in 2004 as a result of high prevalence of HIV among the intravenous drug users.[2]

CASE REPORTS

CASE-1

This was a 24 years old man, single, plumber by profession, resident of a village, smoking approximately 30 cigarettes per day on average since 3 years. He left school after class 10. No history of surgical or dental procedure in the past. No history of blood transfusion. The patient has not travelled abroad. No history of drug abuse. The patient had unprotected sex with a woman only once 9 years back. No history of weight loss, tuberculosis or any symptom. Clinical examination was unremarkable. The patient was tested in two different private laboratories in November 2010 and was reported positive for HIV, S/CO 4.2 on ARCHITECT 2000 immunoassay analyser Chemiluminescent Microparticle Immunoassay (CMIA, Abbott Diagnostic), and on two different ELISA kits. The patient was referred to National HIV/STI Referral Lab for evaluation. The patient was reactive on both rapid and ELISA, SD BiolineHIV ½ 3.0 (Standard diagnostics), 1.296 (0.221 Cut-off) on Vironostika HIV Ag/Ab (Biomerieux) respectively and Negative on New Lav Blot 1 (Bio-Rad) confirmatory assay when tested in December 2010. The patient was retested on fresh sample again in March 2011 it was again reactive on both rapid and ELISA, SD BiolineHIV ½ 3.0 (Standard diagnostics), 1.388 (0.190 Cut-off) on Vironostika HIV Ag/Ab (Biomerieux) respectively and Negative on Inno-Lia™ HIV I/II Score (Innogenetics) HIV-1 and HIV-2 confirmatory test.

CASE-2

Another male was 23 years of age, married, having 1 son and 4 daughters, labourer by profession. He did his middle level education, had history of left hydrocoele surgery in 1994. No dental procedure in the past. No history of blood transfusion. The patient spent 4 years in UAE. He was not deported. No history of drug abuse. No history of extramarital sexual contact. No history of weight loss, tuberculosis or any symptoms. The patient had a dog bite 2 years back and received a few subcutaneous injections in the abdomen without completing the course. Clinical examination was unremarkable. The patient wanted to go abroad to UAE for which he underwent mandatory testing for HIV by one of the authorised laboratories and was informed that the test was reactive in July 2010. The patient then reported to the National HIV/STI Referral Lab. The test was reactive on both rapid and ELISA, SD BiolineHIV ½ 3.0 (Standard diagnostics), 4.054 (0.186 Cut-off) on Vironostika HIV Ag/Ab (Biomerieux) respectively and Indeterminate on New Lav Blot 1 (Bio Rad) confirmatory assay when tested in July 2010. The patient when retested on fresh sample in December 2010, was reactive on both rapid and ELISA, SD Bioline HIV ½ 3.0 (Standard diagnostics), 3.331 (0.196 Cut-off) on Vironostika HIV Ag/Ab (Biomerieux) respectively and Indeterminate on New Lav Blot 1 (Bio Rad) confirmatory test. The patient was again tested on fresh specimen in April 2011 and was reactive on both rapid and ELISA, SD Bioline HIV ½ 3.0 (Standard Diagnostics), 3.421 (0.208 Cut-off) on Vironostika HIV Ag/Ab (Biomerieux) respectively and Negative on Inno-Lia™ HIV I/II Score (Innogenetics) confirmatory assay.

Fresh blood along with Dried Blood Spot (DBS) of both patients was sent to National Laboratory for HIV Reference services, Public Health Agency of Canada in July 2011 for confirmation. The result was

negative on Nested DNA PCR and on Amplicor for HIV-1 and HIV-2 on respective samples.

DISCUSSION

Pakistan is a developing country where there are poverty, and illiteracy; and health facilities are not widely available. The UNAIDS estimates that there are almost 99,700 people living with HIV in Pakistan. Currently there are almost 5,000 people registered at the HIV treatment centres all over the country. In 1987 the first HIV case was reported in Pakistan.[3] The prevalence of HIV among the general population is less than 0.1%.[4] The HIV continues to spread as a result of a number of factors the foremost being lack of awareness among the general population, use of un-sterilised equipment and syringes by health services providers, and sexual activity. Due to non-availability of free health services, people prefer to go to traditional and faith healers.

There is no laboratory regulatory authority in Pakistan; as a result there are mushrooms of labs everywhere in Pakistan. Moreover there is lack of awareness of External Quality Assurance (EQA). As a result there is no EQA available in the public hospital labs as well as majority of the private labs.

HIV testing is not widely available in the public and private labs. Few of the public and private labs have HIV screening kits only. The diagnosis of HIV is based on detection of antibodies. The most common screening kits are based on Rapid and ELISA techniques.[5] Rapid kits are more commonly used as compared to ELISA. The reports are issued on the basis of single test. The positive results are issued without confirmatory tests. There are a number of rapid and ELISA kits available in the market. These are being used without evaluation. The confirmatory tests are not available in any of the public hospitals and almost all private hospitals except for a few. Moreover, the confirmatory tests are costly and are done on request only.

The ELISA and automated immunoassays used nowadays have a high sensitivity and the reactive results should not be reported as positive. The low prevalence of HIV among the general population, lack of counselling and mandatory testing in our country necessitates the use of western blot for confirmation of the HIV infection before the patient is labelled as positive.

CONCLUSION

It is essential to perform confirmatory HIV tests on all reactive samples on screening kits, before issuing a positive report. To develop suitable algorithms for HIV testing based on 3 test strategy where combination of three tests either rapid or ELISA could be used without the need of confirmatory test as suggested by WHO.[6]

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