

## **Brief Communication:**

# **Serodiagnosis of syphilis in HIV Sero-reactive Patients.**

**Chopdekar Kavita A. , Patil Shilpa S., Joshi Ameeta , Chowdhary Abhay**

Department of Microbiology , Grant Medical College, Sir JJ Grp. of Hospital , Mumbai , India

**Corresponding Author:** Dr. Kavita A Chopdekar

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**Abstract:** Concomitant infection of *Treponema pallidum* and Human Immunodeficiency Virus (HIV) presents a serious health problem. Ulceration and inflammation caused by syphilis are implicated as the cofactors for acquiring HIV infection. Treponemal and non treponemal tests play an important role in serodiagnosis of syphilis. A total of 150 HIV sero-reactive sera were tested by Rapid Plasma Reagin (RPR), *Treponema pallidum* Haemagglutination (TPHA) and Enzyme linked immunosorbent assay (ELISA). 22.6% were reactive by ELISA of which 16.6% patients were confirmed by TPHA. Study also indicated that ELISA was superior over RPR for screening of syphilis. Thus it is important that all sexually active persons with syphilis should be tested for HIV and vice- a- versa

**Key words:** TPHA, Syphilis, ELISA

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## **Introduction**

Syphilis a genital ulcerative disease, is an important cause of sexually transmitted disease which also constitutes major public health problem in both developing and developed countries. Infection with Human Immunodeficiency Virus (HIV) in adults in India is predominantly due to heterosexual transmission<sup>1</sup>. Ulceration and inflammation caused by syphilis acts as an important risk factor for transmission as well as acquisition of HIV and both infections appear to progress rapidly when they occur together<sup>2</sup>.

Serological tests are still important tool in the laboratory diagnosis of syphilis. Non treponemal antibody test like VDRL (Venereal Disease Research Laboratory) and Rapid Plasma Reagin (RPR) are useful for mass screening of syphilis<sup>3</sup>. Fluorescent Treponemal Antibody Absorption (FTA-ABS) or *Treponema pallidum* Haemagglutination (TPHA) or

Enzyme linked immunosorbent assay (ELISA), specific for syphilis are more beneficial to avoid false positive result<sup>3,4</sup>. In view of this, the study was undertaken to determine the prevalence of syphilis in HIV sero-reactive patients and to compare efficacy of tests for screening.

## **Material and Methods**

The study was conducted at the Integrated Counseling and Testing Centre (ICTC), Mumbai. Only HIV sero-reactive patients were selected. All the patients had undergone requisite pre-test and post-test counseling. Informed consent was taken. The HIV testing and interpretation was done as per strategy III of NACO guidelines. RPR (SPAN Diagnostics) was performed on all these samples. TPHA test at a serum dilution of 1 in 80 was performed with Immutrep from Omega Diagnostic. Third generation double antigen sandwich ELISA

(IgM, IgG) was carried out with TREPOLISA 3.0 from Qualpro Diagnostics.

### Result and Discussion

Out of 150 HIV sero-reactive patients, predominant were male (59%) and majority were between 30 to 45 years of age group. Among these 34 (22.6%) were reactive by ELISA, 25 (16.6%) reactive by TPHA and only 12 (8%) by RPR test. 59% were positive by both ELISA and TPHA while 41% were positive by ELISA but negative by TPHA test. In our country, RPR is most widely used tool for screening of syphilis, but our study data confirms that after comparing with gold standard TPHA test, ELISA is much superior test over RPR having sensitivity 80% for screening. Serological diagnosis in HIV infected syphilis may be difficult due to more biological false positive reaction, lack of serological response in secondary syphilis, rapid progression to CNS

involvement and failure of non treponemal titre to decline after treatment<sup>3</sup>. In this study, out of 138 cases non reactive by RPR, 25 (18%) patients were found to be reactive by TPHA.

Irrespective of sign and symptoms, all HIV positive patients should undergo baseline screening for syphilis and follow up after 3 months as sero-conversion generally takes about 4 – 6 weeks to appear<sup>2</sup>. Therefore in all suspected cases of syphilis two serological tests, one screening and one specific treponemal test (TPHA or FTA Abs) should be carried out<sup>5</sup>. As compared to TPHA, ELISA is much cheaper test and should be used for mass screening of syphilis. HIV syphilis co-infection affects the initial presentation, disease course, diagnosis and treatment of syphilis. Thus it is recommended that all HIV sero-reactive patients should be screened for syphilis with highly sensitive test and vice –a versa.

### Table

Comparison RPR and ELISA versus TPHA

TEST	TPHA POSITIVE	TPHA NEGATIVE	TOTAL
RPR POSITIVE	9	3	34
RPR NEGATIVE	16	122	116
ELISA POSITIVE	20	14	12
ELISA NEGATIVE	5	111	138

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