

Short Communication

Performance of syphilis serology in students of Ambrose Alli University, Ekpoma, Nigeria

Eyaufe A. A.¹, Osagie R. N.², Isibor J. O.^{2*}, Okwu G. I.³, Oriakhi R. E.³ and Turay A. A.²

¹Departments of Medical Microbiology, Ambrose Alli University, Ekpoma, Nigeria.

²Medical Laboratory Science, Ambrose Alli University, Ekpoma, Nigeria.

³Microbiology, Ambrose Alli University, Ekpoma, Nigeria.

Accepted 23 February, 2009

5 ml of venous blood was aseptically collected from 112 consenting, apparently healthy students of Ambrose Alli University Ekpoma, Nigeria. The enrollees were 62 males and 50 females (age range, 15 – 44 years). The Rapid Plasma Reagin (RPR) and Immunochromatographic tests (Spodex Diagnostic Company) were used to screen and confirm the presence of syphilitic antibodies in their serum and plasma. Out of the 112 samples, the males had a higher rate of seropositivity (17.74%) than the females (12.0%). The age groups that were mostly affected were 21 – 26 years (21.4%), followed by 27 – 32 years (18.2%) and 15 – 20 years (15.8%). Although the advent of HIV infection has relegated other sexually transmitted diseases to the back ground, results from this study show that syphilis is still prevalent in our community with an overall seropositivity of 15.20%.

Key words: Syphilis, serology, students, Ekpoma, Nigeria.

INTRODUCTION

Syphilis is caused by a bacterium known as *Treponema pallidum* and can be transmitted sexually or congenitally (Hook, 2004; Sparling, 1999; Tramont, 2005). It is more prevalent in urban areas than rural areas (Lukehart, 2006). There is no natural immunity to syphilis and past infection offers no protection to infected persons (Dorigo-Zetsma, 2004). Untreated syphilis can lead to destruction of soft tissue and bone, brain, nervous system and heart failure; blindness and still birth can result (Clark and Danbott, 1994; Hook, 2004; Radolf, 1999). The risk of congenital syphilis led to a compulsory test for pregnant women attending antenatal clinics (Stray- Pederson, 1997).

This practice is common to all teaching hospitals in Nigeria (Personal communication, 2007). Syphilis is a disease of ancient times that is still of major importance in modern times (Lukehart, 2005). Syphilis increases the risk of both transmitting and getting infected with HIV (Jesse, 2006). The aim of this study was to access the level of sexually transmitted infection caused by *T. pallidum* in a student community.

MATERIALS AND METHODS

112 consenting undergraduate students of Ambrose Alli University were enrolled for this investigation. 112 specimens of blood (62 from males and 50 from females) were aseptically collected by venepuncture, using a sterile syringe to withdraw 5 ml of blood from each patient. The blood was then discharged into a test-tube, properly capped and taken to the laboratory for centrifugation, for 5 min at 3000 rpm; after which the serum was collected with the use of a sterile pipette into EDTA containers and kept in the refrigerator until required for use. Rapid plasma reagin slide and immunochromatographic tests for the screening and confirmation of reagin antibodies in serum and plasma were carried out following the manufacturer's instructions in the test kits. The RPR antigen controls and samples were brought to room temperature before use. A pipette (held while squeezing and maintaining pressure) was inserted into the specimen and pressure was released to draw up specimen. The pipette was held in a vertical position directly over the circle on test card and pipette squeezed near sealed end to allow a drop of specimen to "free fall" onto test circle. The flat end of the pipette/stirrer was used to spread the specimen to fill the entire surface of circle (A card contained 10 specimens including the control).

The antigen dispensing bottle that was used was shaken properly and held in a vertical position. A drop of "free falling" antigen was put onto each test specimen, and gently rocked for 8 min. The result was read for the presence of flocculation. In the immunochromatographic test by Spodex Diagnostics Company (Strips), the strips were inserted into the specimen (in the container) and left for about 8 min and observed.

*Corresponding author. E-mail: joe_isibor@yahoo.com.

Table 1. Distribution of syphilitic antibodies among age groups.

Age group	Number tested	Number positive	Percentage positive
15-20	19	03	15.79
21-26	28	06	21.40
27-32	22	04	18.20
33-38	29	03	06.80
39-44	14	01	07.14
Total	112	17	15.20

Table 2. Distribution of syphilitic antibodies in relation to sex group.

Sex	Number tested	Number positive	Percentage positive
Male	62	11.0	17.74%
Female	50	06	12.00%
Total	112	17.0	15.20%

RESULTS

Table 1 shows the distribution of syphilitic antibodies among the age group in the student population. Table 2 shows the distribution among males and females. Out of 112 samples tested, 17 (15.20%) were seropositive. Individuals in the age group 21 - 26 had the highest seroprevalence rate. Out of the 17 sero-positives, sixteen samples (14.30%) were confirmed positive on repeated testing with immunochromatographic test by Spodex Diagnostic reagents.

DISCUSSION

Syphilis still remains widespread among sexually active individuals despite the awareness for prevention and control measures advocated by many researchers, governments and non-governmental organizations. In Nigeria, syphilis has acquired new potential for morbidity and mortality through association with the risk of HIV infection. The 14.3% seropositive rate recorded in this study is comparable to that got by Jesse et al. (2006) who reported that 14% of 250 HIV positive and 2% of 250 individuals tested were seropositive for syphilis. On the other hand, Nwokedi et al. (2006) recorded a seroprevalence of 5% in their study. Our results also show that those in the age group 21 - 26 years had the highest sero-prevalence of 21.40%. One is tempted to say that this is the age bracket that "throws caution to the wind". The advent of HIV infection has led to the relegation of other sexually transmitted diseases. This work therefore is an eye opener to the fact that unlike smallpox, syphilis is still prevalent in our communities.

REFERENCES

- Clark EG, Danbott N (1994). The Oslo study of the natural course of untreated syphilis: an epidemiologic investigation. *Sexually transmitted diseases*: 613-623.
- Dorigo-Zetsma JW, Belewu D, Meless H (2004). Performance of routine syphilis serology in the Ethiopian. *Sexually transmitted infection*. 80: 96-99.
- Hook EW (2004). Syphilis in: Cecil Textbook of Medicine. 22nd Ed. Goldman Press Philadelphia. 1923-1932.
- Jesse U, Chigozie O, Ogbu PU, Ogbonnaya EA, Thaddeus MA (2006). Syphilis serology in HIV-Positive and HIV negative Nigerians. The public health significance. *J. Health Allied Sci*. 5: 222-227.
- Lukehart SA (2005). Syphilis In: Harrison's principles of internal Medicine 16th ed. McGraw-Hill Press. New York. pp. 977-985.
- Nwokedi EE, Hiyasu Z, Dikko A, Azeez AO, Mohammed B (2005). Syphilis in a Nigerian Paramilitary Agency: Need for Treatment Policy. *J. Ann. Afr. Med*. 4: 177-179.
- Personal communication with pregnant women attending anti-natal clinics in Universities of Benin, Jos and Irrua Specialist Teaching Hospital, Irrua, Nigeria January 2007.
- Radolf JD (1999). Congenital Syphilis in sexually transmitted diseases. 3rd Ed. - McGraw-Hill. Press New York. pp. 1165-1190.
- Stray-Pederson B (1997). Economic Evaluation of Material Screening to prevent congenital syphilis sexually transmitted disease. 10:167-172.
- Sparling PP (1999). Natural history of syphilis in: Sexually transmitted diseases 3rd ed. McGraw-Hill Press. New York. Pp. 473-508.
- Tramont EC (2005). *Treponema pallidum* (Syphilis). In: Mandell, Dungals and Bennetts. Principles and practices of infectious diseases. 6th edition. Elsevier Press Philadelphia. pp. 2768-2785.