

Prevalence of Syphilis and Knowledge Perception in Pregnant Women Attending Antenatal Clinic at Kyegegwa Health Centre IV

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Abstract

Background: Syphilis is a sexually transmitted infection in the general population and can affect the unborn baby of contracted by a pregnant woman.(1)

Syphilis is caused by *Treponema Pallidum*. It is spread through unprotected sex, close contact with active lesion or through infected mother to her baby during pregnancy or childbirth resulting into congenital syphilis.(2)Syphilis continues to cause child mortality including still births and preterm deliveries.Uganda being one of the endemic area, there is need to document the prevalence and awareness of the effects of the disease in this part of Uganda.The aim of this study was to determine the prevalence and knowledge perception of syphilis in pregnant mothers attending antenatal clinic at Kyegegwa health Centre IV.

Materials and Methods: A standard structured questionnaire for socio-demographic information and level of knowledge on syphilis infection was administered. Venous blood samples were collected after obtaining informed consent. Screening for syphilis was done using the qualitative Rapid Plasma Reagin (RPR) test. All reactive sera was quantified for their RPR titer. The confirmatory test for reactive sera was carried out using the *Treponema pallidum* haemagglutination test (TPHA).

Results: The prevalence of Syphilis was 2% among pregnant mothers attending antenatal clinic at Kyegegwa health Centre IV.80% of the participants were not knowledgeable in regard to Syphilis.

Conclusion : Prevalence of Syphilis in pregnant women attending antenatal clinic at Kyegegwa health Centre IV was 2% and the knowledge level observed was low on syphilis infection .This indicates that syphilis is still a threat to the population of Kyegegwa, Uganda as well as worldwide

Keywords: Syphilis, Rapid Plasma Reagin test, *Treponema Pallidum* haemagglutination test.

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I. Introduction

Syphilis is a sexually transmitted disease caused by a spirochete bacteria *Treponema pallidum*. It affects the genital area, lips, mouth, or anus of both men and women. It can also pass from mother to baby during pregnancy or at birth resulting in congenital syphilis(3, 4). Without treatment, syphilis can result in irreversible damage to the brain, nerve, and body tissues(2). Untreated syphilis in pregnant women can result in death of the fetus, and those who survive always have complications like deafness, blindness, deformity of the face(5).

Both archaeological and literary evidence suggest that mother-to-child transmission (MTCT) of syphilis, commonly referred to as "congenital syphilis," is an ancient scourge(5, 6).

In modern times the effectiveness of syphilis testing and treatment in preventing MTCT of syphilis is well-recognized. Diagnosis and prevention of Mother to child transmission of syphilis is feasible, inexpensive, and cost-effective in nearly every situation evaluated. Yet, despite the tools being available for over 60 years, Mother to child Transmission of syphilis persists as a public health problem(7, 8).

Syphilis presents in different stages; primary, secondary, tertiary and latent. The primary stage presents with a single chancre, secondary syphilis with a diffuse rash which frequently involves the palms of the hands and soles of the feet. Latent syphilis with little or no symptom and tertiary syphilis with gummas and

neurological diseases(9). Congenital syphilis presents with Hepatosplenomegaly rash, fever, neurosyphilis, pneumosyphilis and pneumonitis(4, 6).

II. Materials and Methods

Study design: The study was a cross sectional.

Study site and duration: The study was carried out at Kyegegwa health Centre IV, Kyegegwa district in the month of January in the year 2019.

Study population: These were the pregnant mothers attending antenatal clinic at Kyegegwa health Centre IV.

Inclusion criteria: All the pregnant mothers attending Antenatal clinic at Kyegegwa health Centre IV and had got consent forms willingly to participate in the study were included.

Exclusion criteria: Those who were severely sick and those were showing signs of giving birth on that day of attending ANC were not included in the study.

Sample size: The sample size was 100 pregnant mothers

Sample size estimation: Sample size was calculated using Yamane formula (1967:886). A confidence level of 95% and $P = 0.05$ was considered.

$$n = \frac{N}{1 + N * (e)^2}$$

n is the sample size

N is the population size

e is level of precision

$$n = 125 / 1 + 125(0.05)^2$$

$$n = 100$$

Therefore 100 pregnant mothers attending antenatal were considered for this study.

Data collection methods and laboratory investigations: Qualitative and quantitative data were collected using face to face interviews, questionnaire and blood sampling for laboratory analysis.

Laboratory investigation: Under aseptic conditions, 4ml of blood were drawn into vacutainers with anti-coagulant by venipuncture. Serological tests for the identification of syphilis using RPR reagent were done. Seropositive samples were confirmed with TPHA.

Rapid Plasma Reagin test.

Principle

The Rapid Plasma Reagin card test is a non-treponemal method for the serological detection of syphilis. The antigen-particulate carbon suspension coated with lipid complexes agglutinates in the presence of serum reagins. Reagins are antibodies present in the sera of syphilitic patients. Visible agglutination in the form of black clumps which can be viewed macroscopically indicate the presence of the reagins in the sample tested.

Test procedure

Brought the reagents and samples to room temperature.

Placed 50µl of the sample and a drop of the control into separate circles on the card.

Re-suspended the antigen gently.

Added one drop of free falling antigen to each test circle.

Mixed with the disposable pipette and spread over the entire area enclosed by the ring.

Centrifuged the cards for 8 minutes at 100 rpm.

Then examined the presence or absence of clumps microscopically immediately after removing the card from the rotator and indicated the results in the table form below.

Observed agglutination	Reading	Report
Presence of clumps	R	Reactive
Absence of clumps	N	Non-Reactive

Then those that had clumps were seroreactive and were subjected to TPHA known as Syphilis Ultra Rapid test for confirmation were as follows.

The Syphilis Ultra Raid Test

This is a qualitative membrane strip based immunoassay for the detection of *Treponema pallidum* antibodies in whole blood, serum or plasma.

Principle

In this procedure, recombinant syphilis antigen is immobilized in the test line region of the strip. After a specimen is added to the specimen pad it reacts with syphilis antigen coated particles that had been applied to the specimen pad. This mixture migrates chromatographically along the length of the test strip and interacts with the immobilized syphilis antigen. The double antigen test format can detect both IgG and IgM in specimens. If the specimen contains *Treponema pallidum* antibodies, a red line will appear in the test line region, indicating a positive test. If the specimen does not contain the antibodies a red line will not appear in the test region, indicating a negative result.

To serve as a procedural control, a pink line will always appear in the control region indicating that proper volume of specimen has been added and membrane wicking has occurred.

Procedure

Centrifuged the samples at 1000 rpm for 3 minutes.

Using a disposable dropper, 10µl of the specimen was added to the sample port followed by a drop of the buffer and waited for 10 minutes for the test to run.

Data management and analysis: Questionnaire were reviewed for completeness and consistency, open questions were administered in English and Rutooro for easy understanding for the participants. Informed written consent forms were available to the participants.

Data analysis: The data collected from the study was processed and analyzed using Microsoft excel computer software. The findings were presented in table form, pie chart, and bar graphs as percentages.

III. Results

Result 1

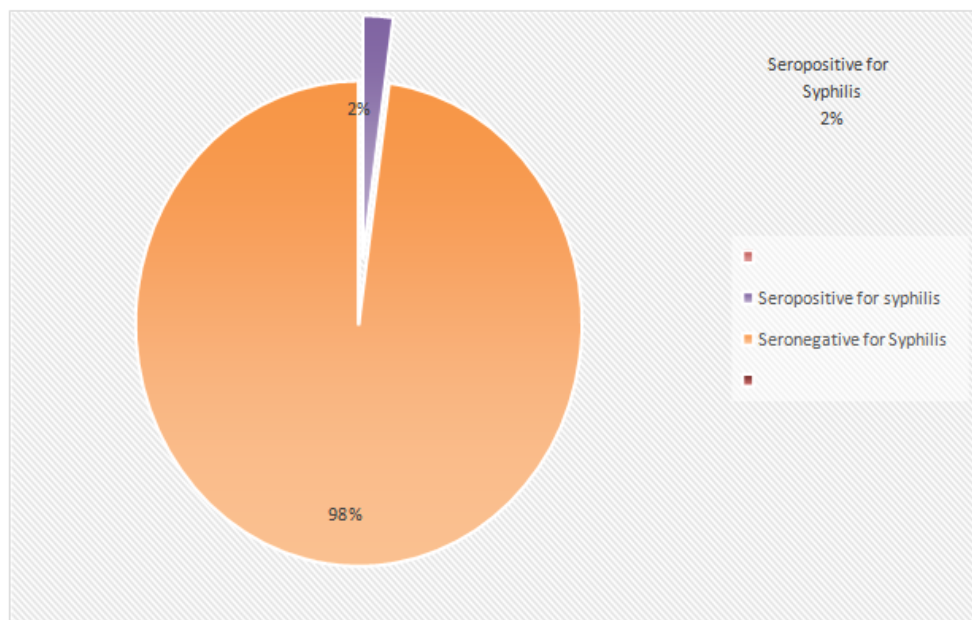


Figure 1: A representation of the participants who were sero-positive for Syphilis.

2% of the pregnant women attending antenatal were seropositive for syphilis.

Result 2: 80% of the participants were not knowledgeable in regard to Syphilis.

IV. Discussion of Results

Out of the 100 participants 2 of them were positive for syphilis. This proportion is low compared to that of the study that was carried out in Juba-South Sudan (10)in 2009 which found the prevalence of syphilis to have been 34.2% which is probably because it was a bigger study.

A study that was carried out in Entebbe revealed the prevalence of syphilis in pregnant women to be 4% (11) which is higher than that at Kyegegwa (2%).The difference of 2% could be the very big number of participants in the study at Entebbe than the study at Kyegegwa health Centre IV.

A study that was done in Karnataka, India on the prevalence of syphilis in pregnant women was 0.6% (1) which is very low compared to that of Kyegegwa that was 2%. This could have been due to improved antenatal attendance and routine screening for syphilis in India which is not the case in Kyegegwa.

A study that was carried out in sub-Saharan Africa(12) showed that the prevalence of syphilis in pregnant mothers was 2.9% which is high compared to that of Kyegegwa that was 2%. The discrepancy in the result could be attributed to the large sample size of the study.

A study that was carried out in South China(13) on poor awareness of syphilis and treatment knowledge on six different populations of pregnant women inclusive showed 66% awareness on syphilis infection by pregnant mothers. This high level of awareness on syphilis is due to high education levels, very big number of participants in the study and also sensitization of population on the effects of syphilis.

According to this study at Kyegegwa health Centre IV, the level of level knowledge perception of pregnant women is low (20%). Following the response of the participants during face to face interviews and use of questionnaire that were provided to them. Therefore more knowledge on syphilis infection among the people of Kyegegwa is highly needed and Uganda as a nation.

V. Conclusion

Prevalence of Syphilis in pregnant women attending antenatal clinic at Kyegegwa health Centre IV was 2% and the knowledge level observed was low on syphilis infection. This indicates that syphilis is still a threat to the population of Kyegegwa, Uganda as well as worldwide.

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