Journal of Pregnancy and Child Health

Research Article **Open Access**

Bacterial vaginosis is the commonest cause of abnormal vaginal discharge among women of child bearing age. This study determined the prevalence of bacterial vaginosis in antenatal attendees as well as investigated the relationships between bacterial vaginosis status, previous adverse obstetric outcome and present HIV status.

Study was cross-sectional using interviewer administered questionnaires. Vaginal samples were collected by physicians and diagnosis made using Amsel criteria. Data analysis was by EPI-INFO 3.5.3. Categorical çæ¦áæà|^•Å¸^¦^Å&[{]æ¦^åÅˇ•â} *ÅÔ@âÅ•ˇˇæ¦^Åæ}åÅ&[}câ}ˇ[ˇ•Åçæ¦áæà|^•Åˇ•â} *Åc@^Å•cˇå^}cÅcÈc^•cÈÅÙcæcâ•câ&æ|Å•â*}â,&æ}&^Å was placed as p<0.05.

Of the 252 subjects studied, 20 were positive for bacterial vaginosis giving a prevalence rate of 7.9%. Of the 23 subjects that had a previous adverse pregnancy outcome, 2 were positive for bacterial vaginosis. Of the 9 subjects that were positive for HIV, Only 1 was positive for bacterial vaginosis.

Å V@^Å æ••[&âæc^åÅ•[&âæ|Å æ}åÅ à^@æçâ[ˇ¦æ|Å-æ&c[¦•Å•cˇââ^åÅ âáâÅ}cÅ•@[ˏŠæ}ˆÅ•cæcâ•câ&æ||^Å•â*}â,&æ}cÅ association with bacterial vaginosis. The number of HIV positive subjects was low and therefore this study lacked •ˇ~,&â^}cÅ][¸^¦Åc[Åå¦áæ¸Å&[}å|ˇ•â[}•Å[}æ}Åæ••[&âæcâ[}Åà^c¸^^}Å[•âcáç^ÅÅàæ&c^¦¦âæ|Åçæ*â}[•â•Å•cæcˇ•Åæ}åÅPQXÅ•cæcˇ•È

Keywords: Bacterial vaginosis; Pregnancy; HIV; Nigeria

Introduction

Bacterial vaginosis (BV) is a genital tract infection that is characterised by an overgrowth of predominantly anaerobic organisms (G ... , P ... spp., M ... and M ... spp.) in the vagina leading to a replacement of Lactobacilli and an increase in the vaginal pH from less than 4.5 to as high as 7.0 [1-3]. It is the commonest cause of abnormal vaginal discharge in women of child bearing age [1,2,4,5]. The reported prevalence rates vary from as low as 3.5% to as high 55%. These rates include 6.4% in Burkina Faso, 3.5% in Yorkshire, 25% in Baltimore, 47.7 % in Uganda, 14.2% in Benin city, 17.5% in Jos and 25% in Osogbo, Nigeria [1,4,6-11].

The main symptom is an offensive fishy smelling vaginal discharge which is characteristically thin, homogenous and adherent to the walls of the vagina. However, almost 50% of affected women are asymptomatic [1-3]. Bacterial vaginosis can be diagnosed clinically in several ways. Consideration is given to availability of methods, the cost and the experience of the clinician. Clinical diagnosis made with the Amsel (Composite) criteria is based upon the presence of any 3 of the following, clue cells on gram stain or wet mount of the vaginal discharge, an anterior fornix vaginal pH of greater than 4.5, the release of a fishy smell on addition of an alkali (10% Potassium Hydroxide) and the presence of the characteristic thin homogenous vaginal discharge.

The Nugent scoring system uses the Gram stain method. It ranges from normal with predominantly lactobacilli to bacterial vaginosis where there is a large number of Gram positive and Gram negative cocci with few or absent Gram positive bacilli (hydrogen peroxide producing lactobacilli) [1,5,12].

The drug treatment includes oral and topical metronidazole and clindamycin [13]. Bacterial vaginosis is associated with obstetric and gynaecological complications which include post-partum endometritis, second trimester miscarriage and pre-term delivery. Bacterial vaginosis

Å U\^&@ˇ\¸ˇÅ ŒÉÅ T^åâ&æ|Å U-,&^¦ÉÅ Þâ*^¦áæ}Å Q}•cäc˜c^Å [-Å Medical Research, Nigeria, Tel: +2348028425806; E-mail: patriscy@gmail.com

17.5% [10]. e study design was cross-sectional. Participant selection was by systematic random sampling where every third patient on the antenatal care list who ful lled the inclusion criteria and was willing to participate in the study was selected. An average of twenty patients were selected each day and eighty patients each week. Selected patients had the study explained again to them a er which they signed an informed consent form. Patients that were not literate thumb printed the consent form a er an explanation of the study had been made to them in their own language. e questionnaires were pre-tested at the antenatal clinic of the Jos University Teaching Hospital. It was an interviewer administered questionnaire subdivided into three sections which includes Socio-demographic characteristics, questions assessing risk factors for developing BV and Foetal outcome. e questions were used to elicit information about the patient's parity, ethnicity, marital status, educational quali cation and social habits. Speci c questions about vaginal douching, contraceptive history, menstrual protection methods, past obstetric history and history of sexually transmitted infections were also included. e questionnaire was clearly written in English Language.

Asides from the administration of questionnaires, a vaginal examination was performed to collect genital samples. Under good illumination,the labia were parted and a sterile non-lubricated Cusco's speculum was introduced into the vagina. Two sterile cotton tipped swabs were used to take swabs from the posterior vaginal fornix. e swabs were immediately rolled on the 2 clean glass slides. One slide had a drop of isotonic saline placed on it to make the wet preparation which was later read under the microscope at x400 magni cation to observe for clue cells. e other slide was allowed to air dry. e speculum was then removed and the physical appearance of the vaginal uid on the speculum was noted and recorded. e pH dipstick was applied to the discharge on the speculum to obtain the pH. e whi test was then performed on the vaginal uid on the speculum by the application of two drops of potassium hydroxide. No bimanual examination was done. e air dried slide was transported in a covered container to the laboratory where it was heat xed and gram stained and observed under oil immersion at x1000 magni cation. e swabs were analysed in conjunction with laboratory scientists from the departmental research laboratory.

e diagnosis was based on the Amsel (composite) criteria where the presence of 3 of the 4 aforementioned criteria gives a positive diagnosis. All patients who ful lled the criteria for bacterial vaginosis were treated with oral metronidazole at a dose of 400 mg 12 h for 7 days. HIV testing was done by a third person who was blinded to the questionnaire and vaginal examination ndings using double rapid test with pre and post test counselling.

e data was double entered into the statistical so ware package EPI-INFO 3.5.3 which was used for analysis. Continuous variables were compared using student t test. Categorical variables were compared using the chi square test and where the numbers were small Fisher exact test was used. Di erences were considered signi cant if p<0.05 .

Results

Two hundred and y two (252) women were recruited for the study of which 20 were positive for bacterial vaginosis, giving a bacterial vaginosis prevalence rate of 7.9%. ere were no signi cant di erences in the mean age, mean parity, religious a liation, level of education and occupation between the two groups.

e mean gestational age at recruitment into the study for the BV positive group (37.5 ± 7.1 weeks) was not signi cantly di erent from that for the BV negative group (27.3 ± 8.2 weeks) (Student t-test=0.09, p=0.93).

Antenatal characteristics

ere were 23 subjects with previous adverse pregnancy outcome. No signi cant di erence in the history of previous adverse pregnancy outcome was detected between the two groups. ere were 9 subjects who tested positive for HIV giving an HIV prevalence rate of 3.6%. ere was no signi cant di erence in the prevalence of HIV infection between BV positive and BV negative groups.

Women who were BV positive were just as likely to be in a polygamous marriage and to have practised vaginal douching as those who were BV negative. e proportions of study subjects that reported a previous history of vaginal discharge or vaginal discharge in the index pregnancy were comparable across both groups of BV status. ere was no signi cant di erence in the prevalence of a past history of miscarriage between the two groups and neither was there any di erence in the type of menstrual protection they had used. ere was no signi cant di erence between the two groups in the use of contraception and among those who had used contraception there was no signi cant di erence, between the two groups, in the use of IUCD as opposed to other forms of contraception.

Adverse pregnancy outcome characteristics

e mean gestational age at previous adverse pregnancy outcome for the BV positive group (29.0 ± 1.4 weeks) was not signi cantly di erent from that of the BV negative group (31.6 ± 2.4 weeks) (student t test=1.47, p=0.15). ere are no signi cant di erences between the BV positive and negative groups as regards their demographic characteristics. 38% of the subjects were primipara while 54% of the subjects were multipara. e rest were grand multipara.

Discussion

is study shows a prevalence of bacterial vaginosis of 7.9%. is is at variance with prevalence rates seen in other studies carried out in pregnant and none pregnant women [3,6-11]. A study in Burkina Faso showed a prevalence of 6.4% while another in Uganda showed a prevalence of 47.7% [4,8]. In Benin city, Nigeria, a study showed a prevalence rate of 14.2%, that study however involved healthy non pregnant volunteer attendees at a reproductive health care service center [9]. In Jos, Nigeria, a study which aimed to determine the risk factors for HIV among pregnant women at the antenatal care clinic,egnauc

Previous adverse outcome of pregnancy in this study was taken as a history of preterm birth and or pre labour rupture of membranes. Preterm delivery is a major cause of perinatal morbidity and mortality and there is increasing evidence that ascending infection from the lower genital tract is an important causative factor [2,26]. e most powerful predictor of preterm delivery is a prior history of such a delivery [2]. In this study, there is no statistically signi cant association between previous preterm birth or miscarriage and present BV status suggesting that women with a previous adverse pregnancy outcome are not at any increased risk of having BV. Study ndings by Hay et al. have shown that an abnormal outcome in pregnancy was associated with a previous preterm delivery [27]. eir study population was found to have a low prevalence of sexually transmitted infections and therefore bacterial vaginosis in that population was considered to be without confounders. e e ect of the abnormal vagina ora was also seen to be an independent predictor of preterm delivery and late miscarriage (16-24 weeks). Bacterial vaginosis is o en a chronic recurrent condition. [2,4]. If there is an association between BV and preterm delivery, it can therefore be inferred that a weaker association with abnormal vaginal ora and a previous preterm delivery may be expected. is may also be expected for spontaneous abortions [2,4]. If in this study, an association had been detected, it may have been an indication that the previous adverse pregnancy outcome may have had a relationship with BV status but such an inference cannot be drawn from a cross sectional study which lacks the power to ascertain the sequence of events. A large scale prospective study with su cient power will however be required to study that association e ectively [28]. is is especially so if the association is a weak one or the di erence is small. Perhaps the timing of the screening for BV is important in order to establish an association. Women who are positive for BV detected early in pregnancy in the rst trimester have a greater chance of having an abnormal pregnancy outcome [2,4,22]. Majority of the women in this study were recruited in the third trimester. It is a possibility that those likely to have chronic recurrent BV whicb (o a)3 (y in p)12.1 (.1 (s)4 151 Tw 0 --4.9 (cr)-10 (ui)12)12 (e)-66g

C

e prevalence of bacterial vaginosis in the antenatal population