



THE INCIDENCE OF BACTERIAL VAGINOSIS IN PREGNANT WOMEN IN DIFFERENT PERIODS OF PREGNANCY

Eman, J.R. Al-Ardawi¹, Habeeb Sahib Naher¹, Nadia M. Al-Hilli²

¹Department of Microbiology, College of Medicine/ Babylon University

²Department of Obstetrics and Gynaecology, College of Medicine/ Babylon University

*Corresponding author email: hames.alhanin2013@gmail.com

ABSTRACT

This study aims for detection and determination the bacterial types implicated in bacterial vaginosis (BV) in pregnant women at different gestations by using clinical criteria and the scoring method. on 100 pregnant women aged between 15-43 years in different gestation periods during a period of five months, from November 2015 to March 2016. Those samples were collected from out- patients in the Babylon Hospital of Gynecology and Pediatrics, and some private clinics in Hilla city. The study showed that 40(40%) women affected by bacterial vaginosis according to Amsel s criteria, and 34(34%) according to Nugent score system. The main age group of bacterial vaginosis occurrence was (26-35%) years, and was more common among pregnant women in the second trimester of pregnancy (47.5%). Microorganisms were mainly isolated among in this study *E. coli* (51.21%), *Staphylococcus aureus* (35.2%), coagulase-negative *Staphylococcus* (24%), *Lactobacilli* (20.4), and *Streptococci spp.* (11.1), *Enterococcus spp.* (9.8%), *Protus spp.* (9.75%) and *Candida albicans* (54%).

KEY WORDS: bacterial vaginosis, Amsel s criteria, Nugent score system.

INTRODUCTION

Bacterial vaginosis (BV) is the most prevalent lower genital tract infection causing vaginal discharge among women of reproductive age (Klebanoff *et al.*, 2004). It is the most common gynecological condition in women of reproductive age and it has been associated with serious health problems including preterm birth, spontaneous abortion, pelvic inflammatory disease, postoperative gynecologic infections and increased risk of acquisition and transmission of several sexual transmitted agents (Schwebke, 2009). Bacterial vaginosis is further associated with a 60% increased risk of HIV-1 acquisition in women (Coleman *et al.*, 2007) and a 3.62 fold increased risk of female to male HIV-transmission (Cohen *et al.*, 2012). It is a common, complex clinical syndrome characterized by alterations in the normal vaginal flora. When symptomatic, it is associated with a malodorous vaginal discharge and on occasion, vaginal burning or itching (Pirota *et al.*, 2009). It is associated with severe reduction or absence of the normal H₂O₂-producing *Lactobacilli* and overgrowth of anaerobic bacteria, including *Gardnerella vaginalis*, *Ureaplasma urealyticum*, *Mycoplasma hominis*, *Mobiluncus spp.*, *Prevotella spp.*, and other anaerobes (Workowski and Bolan, 2015).

MATERIALS & METHODS

This cross sectional study was done on 100 pregnant women who attended the antenatal care clinic in department of obstetrics and gynecology at maternity and child teaching hospital and some private clinics in Hilla city in the period from November 2015 to March 2016. A careful history was taken from each patient. Patients who taken antibiotic treatment, who use vaginal douches and

vaginal cleanser, patients suffering from bleeding, non-pregnant women and recent sexual intercourse were excluded from this study.

METHODS

The study was done on samples of vaginal secretions. The tests used to evaluate the bacterial vaginosis were:

The pH has been determined directly with the use of narrow range (4-7) pH strips (Hangzhoy/China) placed in the vagina, or by touching the swab directly on to the pH strip (WHO, 2013). A drop of 10% potassium hydroxide (KOH) was placed on a glass slide and the swab with vaginal fluid was stirred in the KOH drop and immediately evaluated for the presence of a fishy odor which indicates a positive result. Clue cells were also detected during examination of Gram stained smears (Money, 2005).

Culture technique for isolation of bacteria: Biochemical tests for identification of causes of BV which are oxidase test, catalase test, carbohydrate fermentation test, indole test, vogas-proskauer test (Forbes *et al.*, 2007). The measurement of sensitivity and specificity of single and combined tests (Amsel's criteria).

ETHICAL ISSUES

A- Approval by scientific committee of the clinical Microbiology Department, College of Medicine at University of Babylon, Iraq.

B- Approval by Babylon Health Directorate, Ministry of Health and Information Center for Research and Development of Babylon Province.

C-The objectives and methodology were explained to all of them and verbal consent participant in the study has been taken.

RESULTS

Among 100 pregnant women who attended the departments of obstetrics and gynecology at maternity & child teaching hospital, and some Private clinics, 40 (40%) of them diagnosed as bacterial vaginosis, depending on Amsel's criteria and culture technique, and 34 according to Nugent score system. The age group which is mostly liable to have bacterial vaginosis in the present study was 26-35years, with percentage of (47.5%). The low rate was

reported among females in the age group 36-43 years, which was (22.5%). Out of 45 women in third trimester 16 (40%) of them showed bacterial vaginosis, and 18(45 %) out of 38 women in second trimester showed bacterial vaginosis while 17 women in first trimester, only 6 (15%) had bacterial vaginosis. In this study found that the most sensitive parameter, in identifying bacterial vaginosis was pH measurement which was (92%), with specificity of 50%, while the lowest sensitive test, was the clue cell test as in Table 1.

TABLE 1: Sensitivity, specificity, PPV, and NPV of Amsel s criteria

Amsel s criteria	No. +ve	No. -ve	Sensitivity (%)	Specificity (%)	PPV (%)	NPV (%)
PH	68	32	0.92(92%)	0.5(50%)	0.55(55%)	0.9(90%)
Clue cells	42	58	0.7(70%)	0.76(76%)	0.66(66%)	0.79(79%)
Discharge	60	40	0.85(85%)	0.56(56%)	0.56(56%)	0.85(85%)
Wiff test	60	40	0.89(89%)	0.6(60%)	0.59(59%)	0.85(85%)

Out of 100 pregnant women with other types of vaginosis in present study, *E. coli* (51.21%), *Staphylococcus aureus* (35.2%), *coagulase-negative Staphylococcus* (24%), *lactobacilli* (20.4), and *Streptococci spp.* (11.1), *Enterococcus spp.* (9.8%), *Proteus spp.* (9.75%) and *Candida albicans* (54%), The results indicated that, the patients from rural areas recorded higher BV 24 (60%) compared with those patients of urban residency were 16 (40%). The patients infected with bacterial vaginosis distributed according to educational level: illiterate 14 patients, 6 (42.8%) of them had BV, primary school were 39 patients, 21 (53.8%) of them had BV, secondary school 11 patients, 4 (36.3%) of them had BV and educated 36 patients, 9 (25%) of them infected with BV.

DISCUSSION

The peak of bacterial vaginosis in the present study was in the age group 26-35 years, This results is in accordance with that results obtained by other studies (Milan *et al.*, 2000) [11] who stated that the age group 25-34 years are more liable for BV This result agreed with other studies that showed marked increases in the prevalence of bacterial vaginosis in this age group (Al-Mukh and Hasony, 2001; Gamal *et al.*, 2014; Ibrahim *et al.*, 2014) who found the highest number of BV in the age group of 26-35 years. The reason for the high rates of vaginal infections at the age group (26-35) probably due to the fact that these ages represent the early years of the marriage and increased sexual activity, while older ages of the age 43 and more have less sexual activity and the vaginal pH return to low acidic. Bacterial vaginosis in the present study was distributed according to non-educated and primary school (42.8% and 53.8% respectively) these results similar to other study (Abdelaziz *et al.*, 2013), who found highest infection in non-educated and primary school (25% and 54% respectively). In this study founds high percentage of BV in second trimester Similar results were found by other study (Abdelaziz *et al.*, 2013) that the highest percentage 53 (77%) was detected in second trimester while the least percentage 6(9%) in first trimester of pregnant women.

CONCLUSION

Amsels criteria are more accurate compared with scoring system in detection of vaginosis in pregnant women.

Pregnant women in the second trimester are more vulnerable for BV. Pregnant women with age 26-35 are more vulnerable to BV Compared with other age groups.

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