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Prevalence the bacterial vaginosis (BV) among women of reproductive age attending Al-Immamein Al-Kadhimaein Hospital/ Baghdad

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ABSTRACT— Bacterial vaginosis is one of the most common genital tract infections among reproductive age group, thefore the aim of current study to determine the prevalence bacterial vaginosis (BV) among Iraqi women of reproductive age group attending Al-Immamein Al-Kadhimaein Hospital. A cross-sectional study was conducted at the Al-Immamein Al-Kadhimaein Hospital in Baghdad, Iraq, amongst non-pregnant asymptomatic women aged 19 to 45 years. conducted between the months from January and June of 2020. Swabs collected for culture were transported and delivered to the laboratory immediately. for culture and Biochemical tests were used to identify specific isolates. Sixty-five out of 198 women (33 %) tested positive for BV. The highest BV (No.= 27, 41.5 %) was discovered in the age group 31–35 years, (No.= 12, 18.5 %) in the age group 40 years, so BV was most frequent in married women (90.7.2%), those with higher schooling (38.5%), and people who lived in cities (53.9 %). as well as in current study, 65 bacterial isolates were isolated, with *S. aureus* (25.4 %), Coagulase-negative *Staphylococci* (CONS) (15.4 %), *S. agalactiae* (23 %), *E. coli* (20 %), and *Klebsiella species* (12.3 %) accounting for 29.3 % (19/65) of the total, all isolates were susceptible to Gentamycin (GEN). Among Gram-positive bacteria, *S. aureus* was sensitive to both Ciprofloxacin (CIP) and Gentamycin (GEN) (93%) but susceptible to Erythromycin (ER) (20%), Strep. *agalactiae* sensitivity as (100%), *E. coli* was the most frequently isolated bacteria and was susceptible to Gentamycin (GEN) (97%) and Ciprofloxacin (CIP) (95 %), but to Erythromycin (ER) (20%). Sixty-five out of 198 women (33 %) tested positive for BV. The highest BV (No.= 27, 41.5 %) was discovered in the age group 31–35 years, (No.= 12, 18.5 %), so BV was most frequent in married women (90.7.2%), those with higher schooling (38.5%), and people who lived in cities (53.9 %). as well as 65 bacterial isolates were isolated, with *S. aureus* (25.4 %), Coagulase-negative *Staphylococci* (15.4 %), *S. agalactiae* (23 %), *E. coli* (20 %), and *Klebsiella species* (12.3 %), all isolates were susceptible to Gentamycin *S. aureus* was sensitive to both Ciprofloxacin and Gentamycin (93%), Strep. *agalactiae* sensitivity as (100%).

KEYWORDS: bacterial vaginosis (BV), Iraqi women; reproductive age; Al-Immamein Al-Kadhimaein Hospital

1. INTRODUCTION

Vaginal inflammation, or vaginitis, is caused by a number of viral and non-infectious reasons [10]. Bacterial vaginosis (BV), vulvovaginal candidiasis (VVC), and -speculate vaginitis (TV) are the most common causes of infectious vaginitis [23]. This condition is a major public health concern for sexually active women, their offspring, and their partners even though BV is related to negative reproductive health outcomes such as pelvic inflammation disease, miscarriage, and premature births, as well as an increased risk of HIV transmission process [18], [21], [5].

Bacterial vaginosis (BV) is a vaginal dysbiosis that would be the main cause of vaginal discharge in women of reproductive age. Despite the fact that the majority of instances are asymptomatic and go unreported. [22] BV affects 10% of females2, with prevalence ranging from 12.0 to 30.0 % 3-7. In women of reproductive age, this is the most common cause of abnormal vaginal discharge [3], [15].

Bacterial vaginosis is a bacterial overgrowth [12], [11], [19]. The analysis of vaginal fluid on a wet mount under a microscope is the hallmark of this diagnosis. The presence of clue cells, which have been cervical cells. these cells embedded with rod-shaped bacteria characterize bacterial vaginosis [20].

The aim of the current study: To determine the prevalence of bacterial vaginosis (BV) among Iraqi women of reproductive age group attending Al-Immamein Al-Kadhimaein Hospital

2. Patients and methods

2.1 Methods

A cross-sectional study was conducted at the Al-Immamein Al-Kadhimaein Hospital in Baghdad, Iraq, amongst non-pregnant asymptomatic women aged 19 to 45 years. conducted between the months of January and June of 2020. The study entailed recruiting and enrolling consented eligible subjects. Exclusion criteria were pregnancy, menstrual, unusual vaginal hemorrhage, urinary or fecal incontinence, and antibiotic treatment within 72 hours after diagnosis.

Participants were counseled and given their informed consent. To obtain vaginal discharge specimens, enter sterile cotton wool swab into the fornix and gently roll against with the vaginal wall, trying to take care not to collect cervix secretion. Arrange swab samples in a clean dry receptacle and deliver them to the microbiology laboratory within 24 hours of collection. For microscopy, culture, and sensitivity, see [6], [7].

Swabs collected for culture were transported and delivered to the laboratory immediately. The swabs were inoculated on chocolate agar and human blood agar and incubated at 37 °C for 72 hours within a 5–10% CO_2 humid atmosphere. The swabs inoculated on MacConkey agar were incubated at 37 °C for 48 hours. Biochemical tests were used to identify specific isolates. For Gram-positive isolates; catalase, coagulase, bacitracin, and optochin disk were used. For Gram-negative bacteria; indole, motility, Kliger iron agar test, Simmon citrate agar test, urease test, and oxidase test were used.

Data analysis: the data analysis was by Statistical Package for Social Sciences (SPSS) version 20.0. Chi-square were calculated, and p value <0.05 was significant.

3. Results

Sixty-five out of 198 women (33 %) tested positive for BV. The highest BV (No.= 27, 41.5 %) was discovered in the age group 31–35 years, (No.= 12, 18.5 %) in the age group 40 years, while (No.= 10, 15.4 %) in the age group 26–30 years (Table 1).

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Table (1): Prevalence of Bacterial vaginosis in different age groups

Age (years)	All patients		Positive culture	
	No.	%	No.	%
≤20	13	6.5	1	1.5
21–25	16	8	5	7.7
26–30	30	15.2	10	15.4
31–35	66	33.4	27	41.5
36–40	32	16.2	10	15.4
≥40	41	20.7	12	18.5
Total	198	100	65(33%)	100

Table 2 reveals that BV was most frequent in married women (90.7.2%), those with higher schooling (38.5%), and people who lived in cities (53.9 %).

Table (2): Demographic and clinical characteristics of the study participants

Variables	No.	%
Marital status		
Married	59	90.7
Single	6	9.3
Education level		
No education	8	12.3
Primary	19	29.2
Secondary	25	38.5
Tertiary education	13	20
Residence		
Urban	35	53.9
Rural	30	46.1
Total	**65**	**100**

In this study, 65 bacterial isolates were isolated, with *S. aureus* (25.4 %), Coagulase-negative *Staphylococci* (CONS) (15.4 %), *S. agalactiae* (23 %), *E. coli* (20 %), and *Klebsiella species* (12.3 %) accounting for 29.3 % (19/65) of the total (Table-3).

Table (3): Frequency of bacterial pathogens isolated from Vaginal swabs in this study

Bacterial Isolated	**Frequency**	
	No.	**%**
Staph. aureus	19	29.3
Coagulase negative *Staphylococci* (CONS)	10	15.4
Ciprofloxacin (CIP)occus agalactiae	15	23
E. coli	13	20
Klebsiella species	8	12.3
total	65	100

Table 4 shows the antimicrobial susceptibility of isolates; all isolates were susceptible to Gentamycin (GEN). Among Gram-positive bacteria, *S. aureus* was sensitive to both Ciprofloxacin (CIP) and Gentamycin (GEN) (93%) but susceptible to Erythromycin (ER) (20%), Strep. *agalactiae* sensitivity as (100%). Among Gram- negative bacteria, *E. coli* was the most frequently isolated bacteria and was susceptible to Gentamycin (GEN) (97%) and Ciprofloxacin (CIP) (95 %), but to Erythromycin (ER) (20%).

Table (4): Antibiotic Sensitivity pattern of predominant bacterial isolated from patients (%).

Antibiotics	Sensitivity of Bacterial isolates				
	Staph. aureus	CONS	*Strept. agalactiae*	*E.coli*	Klebsiella species
Amoxicillin (AMOX)	69	10	91	55	0
Ceftriaxone (CER)	80	80	91	36	61
Ciprofloxacin (CIP)	93	83	100	**95**	91
Clindamycin (CD)	81	75	95	-	-
Erythromycin (ER)	20	9	43	-	-
Gentamycin (GEN)	93	80	100	97	91
Tobramycin (TOB)	83	60	91	31	77
Trimethoprim/sulfamethoxazole (SXT)	46	40	47	9	44

4. Discussion

Sixty-five out of 198 women (33 %) tested positive for BV. Among the screened cases, the highest BV (No.= 27, 41.5 %) was also in the age group 31–35 years, and the lowest BV (No.= 12, 18.5 %) was in the

age group 40 years. This is consistent with the findings of [9], who found that vaginitis was diagnosed among young women 20–30 years old, and they measured 15–30

Table 2 reveals that BV was most common in married women (90.7.2%), those with a secondary education (38.5%), and people that lived in cities (53.9 %).

Another study demonstrated that increased BV was not statistically significant in younger females with a low level of formal education [1]. However, [17], [4], both discovered a relationship between a low educational level and BV.

In this study, 65 bacterial isolates were discovered, with S. aureus (25.4 %), Coagulase negative Staphylococci (CONS) (15.4 %), S. agalactiae (23 %), E. coli (20 %), and Klebsiella species (12.3 %) accounting for 29.3 % (19/65) of the total (Table-3).

Table 4 shows the antibiotic susceptibility of isolates. Among Gram-positive bacteria, S. aureus was sensitive to both Ciprofloxacin (CIP) and Gentamycin (GEN) (93%) but susceptible to Erythromycin (ER) (20%), and Ciprofloxacin (CIP)occus agalactiae was sensitive to Ciprofloxacin (100%). (95 %). S. aureus was resistant to Ciprofloxacin (CIP) and Gentamycin (GEN) among Gram-positive bacteria, however they were susceptible to Erythromycin (ER) (20 %),

The findings were consistent with recent results in Ethiopia and elsewhere [13]. E. coli was the most commonly identified Gram-negative bacteria and was resistant to erythromycin (95.5%), trimethoprim/sulfamethoxazole (91.3%), and ceftriaxone (91.3%). (63.6 %). The current findings matched those of studies conducted in Bahir Dar [16], Gondar [13], [8], Addis Ababa, Ethiopia [2], and Portugal [3]. [14].

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