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RESEARCH ARTICLE

Prevalence of Bacterial Vaginosis in Kashmir Antenatal Patients

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Abstract

Objectives: This study was undertaken to estimate the prevalence of bacterial vagionsis in antenatal patients who attended the outpatient department of obstetrics and Gynecology Govt. Lalla Ded Hospital Srinagar.

Method: A total of 1000 pregnant woman in the age group of 15- 34 year were selected and all the woman were screened for bacterial vaginosis by gram stain and Clinical (Amsel's) criteria.

Results: Bacterial vaginosis was in 17.2% of patients by using gram stain and 11% by composite clinical criteria. Prevalence of bacterial vaginosis in urban set up was 10% (26/260), 18% in rural areas (45/250) and 20.6% (10/490) in urban slums. There was no significant association between bacterial vaginosis and low educational level but there was a significant association between women with low income and bacterial vaginosis. The sensitivity and specificity of gram stain for diagnosis of bacterial vaginosis considering Amsels criteria as standard was 96% and 93% respectively.

Conclusion: The vaginal swabs taken at routine antenatal visits frequently come positive for bacterial vaginosis as symptomatic bacterial vaginosis is an extremely prevalent condition among pregnant women. Screening and treatment of asymptomatic infections should be performed early in the pregnancy so that the complication rate can be decreased.

INTRODUCTION

Bacterial vaginosis or non-specific vaginitis is an extremely prevalent vaginal condition and the number one cause of vaginosis in both pregnant and non-pregnant women.[1] It is a disorder of the vaginal ecocystem involving a reduction or loss of the normal lactobacilli and an overgrowth of aerobic and Gm negative or Gm variable bacteria[2-3] including Mycoplasma hominus bactericides species, ureaplasma urealyticum and gardnerella vaginalis. Bacterial vaginosis has been associated with many adverse pregnancy outcomes such as preterm birth[4,5,6], spontaneous abortion[3,8,9], amniotic fluid infection[10,11], clinical chorioamniotis[10,11], PROM[12], LBW[5], postopartum endometritis.[13]

It is a polymicrobial syndrome and is not known to be caused by a single infectious agent. The Amsel's criteria defines bacterial vaginosis as being present if three of the following criteria are found. Thin, white, yellow or homogenous discharge, clue cells on microscopy, pH of vaginal fluid > 4.5 fishy odour on adding 10% potassium hydroxide solution. The second commonly used diagnostic test involves a gram stain of vaginal fluid and use of nugent criteria or the Hay/Ison criteria.[14] Nugut criteria has high sensitivity and specificity 89% compared with Amsl's criteria 83%.[15,16] Bacterial vaginosis can be treated by antibiotics, systemic or topical with spontaneous relapse accounting more commonly among women treated with topical compared with systemic antibiotics.[17]Metronidazole 500mg twice daily or 250mg thrice daily for 7 days with cure rate 84% - 96% or 2g

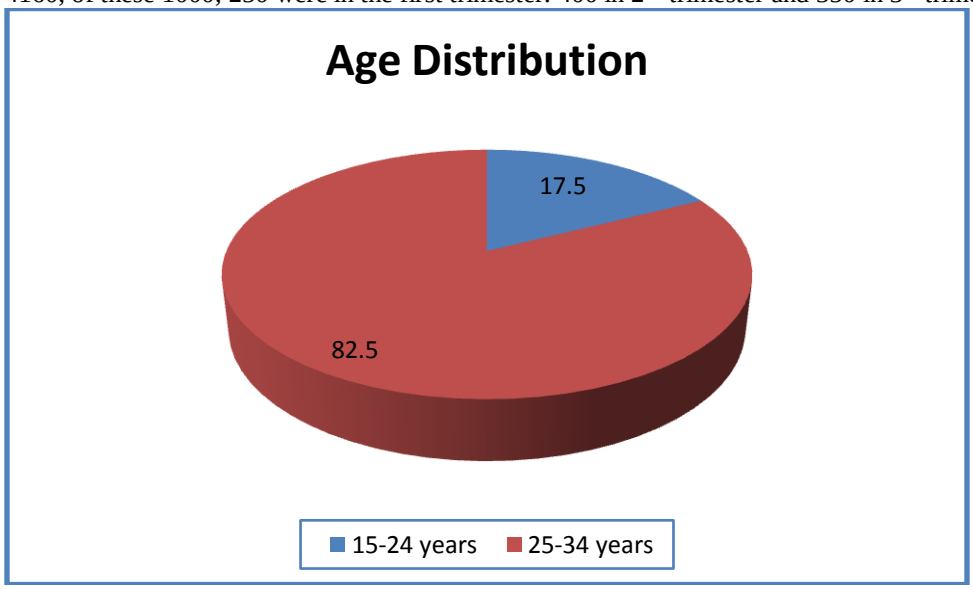
single dose with a cure rate of 54-62%[18,19] or clindomycin 30mg twice dialy for 7 days with cure rate of 94%[19] topical agents are 0.75% metronidazole vaginal gel twice daily for 5 days with cure rate 75-81% clingen 2% vaginal cream was reputed to resolve 82-96% cases of bacterial vaginosis.

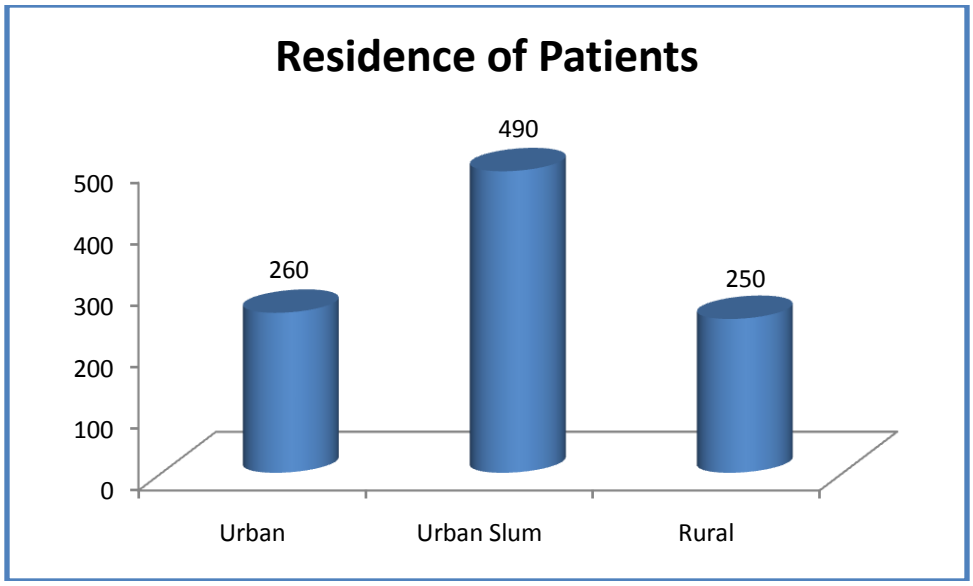
MATERIAL AND METHODS

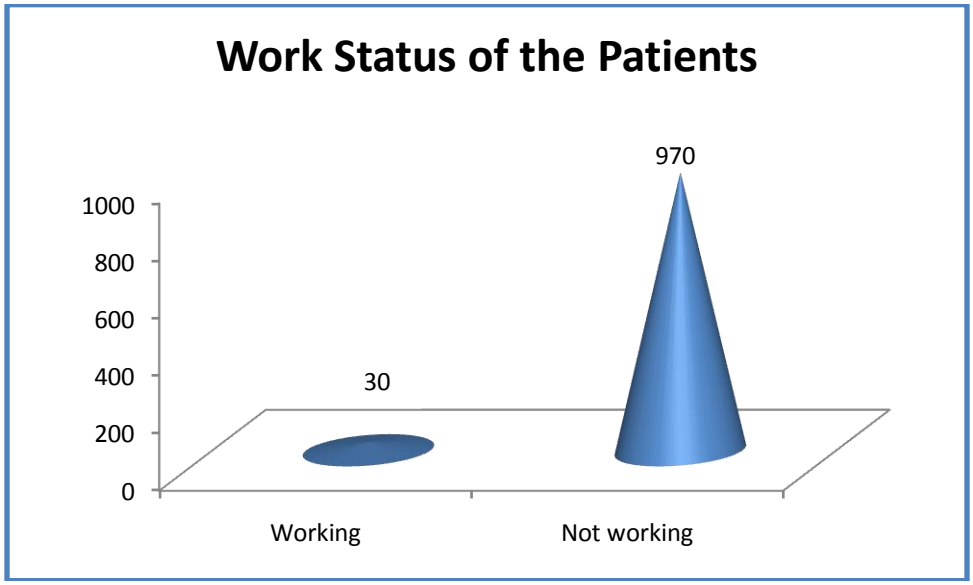
This study was undertaken to find prevalence of bacterial vaginosis in Kashmiri pregnant women. A total of thousand pregnant women were included in the study in the age group of 15-34 years. Relevant clinical data was collected from every patient which included history, general physical examination and obstetric examination and baseline investigations including USG were performed. All the women were screened for bacterial vaginosis by gram stain and clinical criteria (Amsel's criteria). Women with leaking, bleeding per vaginum and patients treated for abnormal vaginal discharge antibiotic use in the preceding two weeks were excluded from the study.

RESULTS

Among 1000 women, 490 belonged to urban slum, 260 belong to urban and 250 to rural communities. The women in the study group were in the age group of 15-34 years and 82.2% were $\geq$ 25 years of age. Majority of the women in the study group were not working 92%, and most of them were illiterate, 540 patients were illiterate, 130 were just literate, 170 had completed primary schooling, 130 had completed high school, 20 had completed higher secondary and 10% had completed graduation. Among 1000 cases 970 were not working and only 30 were working ladies and 2% had income <520, 16% had income 520-1299, 61% had Rs. 1300-2599, 16% had Rs. 2600-4159 and 50 had Rs. $\geq$ 4160, of these 1000, 250 were in the first trimester. 400 in 2nd trimester and 350 in 3rd trimester.







The prevalence of bacterial vaginosis in our Kashmiri antenatal population is 17.2% by gram stain and 11% by clinical criteria. With highest prevalence in women belonging to urban slum and bacterial vaginosis was 23.6% in women in the age group of 15-24 years and 15.8% in the age group of 25-34 years. There was no significant association between bacterial vaginosis and low educational level but there was a significant association between low income and prevalence of bacterial vaginosis. In this study 15.3% of women not complain of vaginal discharge also had bacterial vaginosis. These asymptomatic cases are less likely to seek treatment and are prone to complications of bacterial vaginosis. The sensitivity and specificity of gram stain for diagnosis of bacterial vaginosis considering Amsel's criteria as standard was 96% and 93% respectively.

Table – 1
Correlation between bacterial vaginosis and various socio demographic / risk factors

Characteristics	No. of Patients	Vaginal Flora Morphology		
		Bacterial Vaginosis	Intermediate Flora	Normal

Age	15-24	178	42 (23.59%)	22 (12.3%)	114 (64%)
	25 – 34	822	130 (15.8%)	115 (13.9%)	577 (70.1%)
Location	Urban middle class	260	26 (10%)	46 (17.6%)	188 (72.3%)
	Urban slum	490	101 (20.6%)	65 (13.2%)	324 (66.12%)
	Rural	250	45 (18%)	26 (10.4%)	179 (71.6%)
Literacy	Illiterate	540	92 (17.03%)	81 (15%)	367 (67.9%)
	Just literate	130	23 (17.6%)	17 (13.10%)	90 (62.2%)
	Primary	170	29 (17.05%)	21 (12.3%)	120 (70.55%)
	Secondary School	130	26 (20%)	13 (10%)	91 (70%)
	Higher Secondary	20	1 (5.0%)	2 (10%)	7 (85%)
	Graduate	10	1 (10%)	3 (30%)	6 (60%
Income	< 520	20	7 (35%)	4 (20%)	9 (45%)
	520-1299	160	44 (27.5%)	38 (23.7%)	78 (48.75%)
	1300-2599	610	84 (13.7%)	75 (12.29%)	451 (73.9%)
	2600-4159	160	29 (18%)	15 (9.3%)	116 (72.5%)
	≥ 4160	50	8 (16%)	5 (10%)	37 (74%)
Vaginal discharge	Yes	410	82 (20%)	54 (13.1%)	274 (66.8%)
	No	590	90 (15.2%)	83 (14.06%)	417 (170.6%)

Table -2
Correlation between bacterial vaginosis and age

Age (in years)	No. of Patients	Bacterial Vaginosis	Intermediate Flora	Normal
15-24	178	42 (23.59%)	22 (12.3%)	114 (64%)
25 – 34	822	130 (15.8%)	115 (13.9%)	577 (70.1%)

PV = 0.044; Pearsons χ^2 = 6.234; Spearman's Correlation = 0.061

Table - 3
Correlation between bacterial vaginosis and location

Location	No. of Patients	Bacterial Vaginosis	Intermediate Flora	Normal
Urban middle class	260	26 (10%)	46 (17.6%)	188 (72.3%)
Urban slum	490	101 (20.6%)	65 (13.2%)	324 (66.12%)

Rural	250	45 (18%)	26 (10.4%)	179 (71.6%)

PV = 0.001; Pearsons χ^2 = 17.568; Spearman's Correlation = 0.061

Table - 4
Correlation between bacterial vaginosis and literacy

Literacy	No. of Patients	Bacterial Vaginosis	Intermediate Flora	Normal
Illiterate	540	92 (17.03%)	81 (15%)	367 (67.9%)
Just literate	130	23 (17.6%)	17 (13.10%)	90 (62.2%)
Primary	170	29 (17.05%)	21 (12.3%)	120 (70.55%)
Secondary School	130	26 (20%)	13 (10%)	91 (70%)
Higher Secondary	20	1 (5.0%)	2 (10%)	7 (85%)
Graduate	10	1 (10%)	3 (30%)	6 (60%

PV = 0.625; Pearsons χ^2 = 8.042; Spearman's Correlation = 0.024

Table - 5
Correlation between bacterial vaginosis and Income

Income	No. of Patients	Bacterial Vaginosis	Intermediate Flora	Normal
< 520	20	7 (35%)	4 (20%)	9 (45%)
520-1299	160	44 (27.5%)	38 (23.7%)	78 (48.75%)
1300-2599	610	84 (13.7%)	75 (12.29%)	451 (73.9%)
2600-4159	160	29 (18%)	15 (9.3%)	116 (72.5%)
≥ 4160	50	8 (16%)	5 (10%)	37 (74%)

PV = 0.000; Pearsons χ^2 = 47.559; Spearman's Correlation = 0.147

Table - 5
Correlation between bacterial vaginosis and Vaginal discharge

Vaginal discharge	No. of Patients	Bacterial Vaginosis	Intermediate Flora	Normal

Yes	410	82 (20%)	54 (13.1%)	274 (66.8%)
No	590	90 (15.2%)	83 (14.06%)	417 (170.6%)

PV = 0.147; Pearsons χ^2 = 3.828; Spearman's Correlation = 0.049

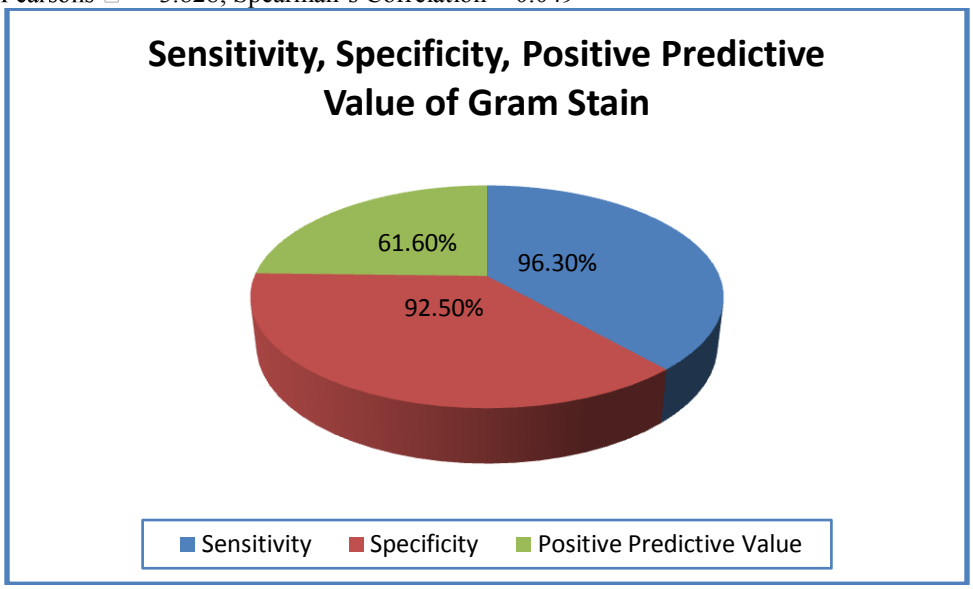


Table - 6
Frequency distribution of diagnostic criteria in bacterial vaginosis

Diagnostic Criteria	Bacterial Vaginosis	No bacterial vaginosis
pH	110	99
Whiff Test	100	56
Clue cells	110	0
Vaginal discharge	82	328
Gram stain	172	0

DISCUSSION

Bacterial vaginosis is a common cause of vaginitis in women who are sexually active and has been associated with various sequelae. It is an important risk factor for preterm birth as well as upper genital tract infection in the non-puerperal patient. The prevalence of bacterial vaginosis in urban slums is higher than that of rural and urban communities. The reason behind it is the differences in various sociodemographic factors in different

communities. Among the individual criteria used to diagnose bacterial vaginosis a raised pH is recognized as the most sensitive but least specific. Amine test is both highly sensitive and specific. The gram stain provides a distinct look at the bacteriologic morphotypes and is unaffected by factors which may alter pH and by technical variables such as observational errors. The vaginal gram stain has been shown to have excellent intra and inter-observer reproductibility. Vaginal gram stain based diagnosis is reliable and an easy method of diagnosing bacterial vaginosis and can be useful where facilities for using Amsel's criteria are not reliable.

CONCLUSION

The vaginal swabs done at routine antenatal visits frequently come positive for bacterial vaginosis as symptomatic bacterial vaginosis is an extremely prevalent condition among pregnant women. The prevalence of bacterial vaginosis varies widely among different communities and risk factors are different in different populations with higher prevalence among women from urban sums and women from low socioeconomic status. Screening and treatment of asymptomatic infections should be performed early in the pregnancy, so that the complication rate can be decreased.

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