The Frequency of *Trichmonas Vaginalis*, *Candida Albicans* And Bacterial Vaginosis in Vaginal Smear from Women of Reproductive Age

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ABSTRACT

Bacterial vaginosis, candidal and trichomonal vaginal infections are a main health problems associated with gynecologic complexity and increase in replication and other STIs in women of reproductive age. The study aimed at determining the prevalence of widespread vaginal infections and antimicrobial capability profiles of aerobic bacterial and isolates in women of reproductive age. This study aim to recognize frequency distribution of vaginitis in women referred to health centers of the Gynecology Hospital Center in hilla city, Iraq.. Trichomonas vaginal was the most common infection [50 (26%)], followed by candida [50 (22%)]. This study was made with the objective of contrast the frequency of the main causative agents of vaginitis. The highest frequency of pathogenic microorganisms in vaginal swabs was Escherichia coli (20%) and Staphylococcus aurous (20%) followed by anaerobic bacteria of Neisseria gonorrhoeae (6%). The bacterial flora of the female genital tract is highly effective and the local microbial society consists of a large abundance of different species.

Keywords: *vaginitis, Trichomonas vaginalis, Candida albicans, Bacterial vaginosis, vaginal discharge, Iraq.*

INTRODUCTION

The female genital system has a strange microflora with various species alive. Among them is clipping of T. vaginalis infection. T.V. is a common cause of vaginal discharge that infects of 120 million women per year [1]. Trichomoniasis is estimated by the World Health Organization to show cause for almost half of all curable sexually transmitted infections world wid [2], and is state to be the most prdominant non-viral STI in the world[3]. It has been suggested that T. vaginalis infection play about a role in the pathogenesis of preterm birth, preterm rupture of membranes, and posthysterectomy turn-up infections [4, 5]. Trichomoniasis has been got a lot of attention as a main public health problem in recent years due to the combination between T.vaginalis infection and human immunodeficiency virus conquest in both men and women. The connection between T.vaginalis infection and human immunodeficiency virus (HIV) infection is bidirectional, such that T.vaginalis infection raise risk of transmission of HIV, and HIV infection raise transmission to T.vaginalis infection [6]. Vulvovaginal candidiasis is caused by an excessive growth of Candida albicans in 90% of women (remainder other species eg C. glabrata) [7]. The caused infection by Candida sp appear when there is too much proliferation of this microorganism in the vaginal flora, arrest its colonization and onset to achieve outright adherence to the vaginal cells, consequently causing infection [8]. Candida is not associated with any dangerous complications, and should therefore be treated only in casual women. Contrariwise, consistency and treatment of Chlamydia and gonorrhoeae in pregnancy is crucial [9]. Vulvovaginal candidiasis is a very wide spread condition that affects up to 75% of women at minimum once in their lifetime [10]. Danger factors for VVC include sexual action, new antibiotic use, pregnancy, and immunosuppression

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from such case as poorly controlled HIV infection or diabetes [11]. Bacterial vaginosis (BV) is known as an imbalance in the normal vaginal flora with decrease in the normally prevalent lactobacilli and the reproduction of other anaerobic bacteria [12, 13] is the combined cause of abnormal vaginal discharge in woman of childbearing age, but may also be encountered in menopausal women, and is rather uncommon in children [14, 15]. In Caucasian women the diffusion is 5-15%, in African and American blacks 45-55%. In Asian women the prevalence is less well calculated, but in universal around 20-30%. Women having sex with women portion similar lactobacillary types and are at raise risk for BV [16]. Bacterial vaginosis is describe by the exchange of the vaginal flora, normally predominate by lactobacilli, by a complex and numerous flora of accurately or optionally anaerobic bacteria that are normally found in the vagina (Gardnerella vaginalis, Bacteroides sp, Peptostreptococcus, Mobiluncus sp). Anumerous foul-smelling vaginal secretions are the perfect symptom of infection by Gardnerella vaginalis[17].

MATERIALS AND METHOD

Patients and clinical specimens

Patients were visitors of the Gynecology Hospital Center in hilla city. All female patients submitting for a routine STD inspection at the outpatient clinic. Patients were clinically tested and all claim concerning the lower genital tract, such as vaginal discharge and vulval and vaginal irritation sampling with a single cotton swab was performed in the posterior vaginal fornix. Since some of the patients were seen more than once, from 50 patients, samples were obtained and taken to the microbiology laboratory to identification the isolated bacteria.

Identification of *T .vaginalis* and *C. albicanus*

Detection of motile trichomonas and candida albicans by light-field microscopy can be achieved by collection of vaginal discharge using a swab or loop, which is then mixed with a small drop of saline on a glass slide and a coverslip placed on top. The wet preparation should be read within 10 minutes of collection, as the trichomonads will quickly loose motility and be more difficult to identify [18]. The slide should be scanned, firstly at low magnification (x100), and then at a higher magnification (x400) to confirm the morphology of any trichomonads and to visualise the flagella. Microscopy as a diagnostic aid for TV has the advantage that it can be performed near to the patient and in a clinic setting. The sensitivity is highest in women presenting with vaginal discharge and a visualisation of motile trichomonas in these women indicates the presence of infection. The specificity with drilled personnel is high exposure of TV by staining dead organisms with leishmans stain can award a higher sensitivity than wet microscopy [19,20].

Identification of bacteria

The sample cultured on the different media (MacConkey's agar ,Blood agar ,Eosin methlene blue agar, chocolate agar and Brain- Heart Infusion agar plates) under aerobic and anaerobic condition ,then investigations the bacteria isolated by using different biochemical test and gram's stain [21].

Statistical Analysis

Statistical analysis was performed by using SPSS statistical computer software.

RESULTS AND DISCUSSION

A total of fifty patients visiting the Gynecology Hospital Center in hillah city included in the study. Candida albicans and Trichomonas vaginalis to the overall prevalence Trichomonas vaginalis had the highest prevalence (26.0%) while Candida albicans had the least prevalence (22.0%). The prevalence of Candida albicans in conjunction with Trichomonas vaginalis among the infected participants was found. In the present study, the commonest isolated pathogen was T. vaginalis (26%) followed by C.albicanus (22%). Reports differ in pathogens associated with vaginal discharge and their prevalence. Our findings should be interpreted in light of the various limitations of our study. First, someone may consider the number of analyzed results of vaginal fluid cultures to be relatively small. Second, it should be mentioned that our study population differs from that of other studies conducted in Western societies, a fact that might be affected by the differences in personal hygiene and sexual behavior, which may potentially influence the incidence and etiology of vaginitis. In relation to the recurrence of the different vaginal pathogens, high indices of infection by Candida sp were found in the past decade (22.5%) [22] and low indices of trichomoniasis (3.4% in the same period). These data are suitable with those in other publications Mbu and colleagues [23] have reported a higher diffusion (35.4%) of Candida albicans in Cameroon. A low prevalence (1.2%) was observe for Trichomonas vaginalis which is lower

than the 10,6% reported by . While other studied have suggested Bacterial vaginosis(BV)and Trichomonas vaginalis (TV) are the 2most wide spread types of vaginal infections. BV and TV have been combination with an increased risk of squamous intraepithelial lesions and/ or CIN based on biopsy results [24,25]. One of the most widespread combination with *T. vaginalis* is the existence of bacteria and *Candida* spp [26], and the data acquired in the group of pregnant women showed no association with the presence of infection danger factors analyzed (pain, history of STIs, itching and vaginal secretion, smoking, alcohol, etc.), but the combination was spotted with *C. albicans*. It is known that environmental changes such as increased glycogen produce during pregnancy and convert levels of estrogen and progesterone, by the use of oral contraceptives, warrant adherence of *C. albicans* to vaginal epithelial cells and facilitate germination of yeast [27]. As shown in table 1, the most prevalent pathogen was Escherichia Coli and Staphylococcus aureus followed by Anerobic bacteria Neisseria gonorrhoeae Reports differ in pathogens associated with vaginal discharge and their prevalence. The epidemiological and clinical similarities between bacterial vaginosis and trichomoniasis suggest a similar pathogenetic process; i.e., primary causation by a specific agent, with secondary anaerobic activation and resultant amine production [28]. Vaginal culture is one of the most difficult cultures to be evaluated in a clinical microbiology practice. The necessity of some expensive and complicated processes for diagnosis of some specific agents, age related variability of normal vaginal flora, and failure to make a diagnosis caused by the temporary presence of some pathogens in normal flora can be listed among the probable causes of that problem [29]. It also confirms the findings from [30] another potential co-infection with T. vaginalis is bacterial vaginosis which have been evaluated to affect as many as one-quarter to one-third of sexually effective females worldwide and are often set up concurrently. Trichomonas vaginalis colonisation is increased in the existence of bacterial vaginosis-know phenomena, such as high amine produce, loss of elective lactobacilli and increased pH [31]. Rarely pathogenic microorganisms have been described as symbionts, and the role of protozoa as vectors for the transmission of human diseases has received little attention. Interest increased after the finding that symbiotic relationships between protozoa and bacteria could exert a strong influence on the pathogenesis of one or both microorganisms [32]. The result showed the number of genus E.Coli more than another type of aerobic bacteria isolated Jabuk et al . [33] also present the number of isolated E.Coli more than another type. The vaginal microflora is normally made up of 5±15 various bacterial species, including aerobes and anaerobes, and has the possible to different clinical syndromes (e.g. bacterial vaginosis) and diseases (e.g. pelvic infammatory disease). Gram-negative elective an aerobic Escherichia coli is one of the widespread organisms in the microflora of pregnant as well as non-pregnant Women [34,35]. Aerobic vaginitis has been specified for a smaller portion of women whose microbiota (lactobacilli) is predominated by facultative anaerobic or aerobic bacteria especially S. aureus, group B streptococci, E.coli and Klebsiella spp. Table 2. Also show the vaganitis is the most current cause among women in reproductive age. It also confirm the returns from Goldberg et al. Bacterial vaginosis (BV) is the most popular cause of vaginal discharge among women in reproductive age with a predominance of 9-37%, depending on the population studied. The prevalence of T. vaginalis in the United States is reported as 3.1% among women of reproductive age. As other studies have propose, the Women between 26-40 years had the highest predominance of each pathogen, although this was not statistically significant. Prevalence was found to be significantly higher with excessive education although women with secondary education were found to have significant values than those with post-secondary education ($P < 0.01$).

Table 1. The type and number of bacteria isolated from vaginal swabs.

Type of bacteria	NO. of bacteria isolated from vagina
Aerobic	
Escherichia coli	10
Pseudomonas aeruginosa	3
Bacillus subtilis	3
Klebsiellapneumoniae	4
Staphylococcusepidermidis	8
Staphylococcus aureus	10
Streptococcus mutans	6
Proteusmirabilis	7
Anaerobic	
Peptpstreptococcus sp.	2
Neisseria gonorrhoeae	3
Lactobacillus sp.	2

Table 2. The number and percentage of bacterial isolated from vaginal swabs according to the age

Age range	No. of negative	No. of positive	Percent (%)
18-24	5	21	25.6
25-34	2	16	19.5
35-45	2	4	4.9
Total	9	41	50

CONCLUSION

The high spread of genital infections note the application of stable health education and sensitization essentially among women of child bearing age who are at danger of preterm labor or birth and low birth weight .More research is needed to help achieve the mechanisms or co-factors involved in the relationship between BV and conquest of TV including common external factors, such as other sexually transmitted infections and host immune factors. It will be substantial to understand the mechanisms by which abnormal vaginal flora promote sensitivity to TV.

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Conflict of Interest: None to declare.

Ethical Clearance: All experimental protocols were approved under the Department of Biology, College of Science, University of Babylon, Hillah city, Iraq and all experiments were carried out in accordance with approved guidelines.

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