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The investigation of some bacterial the etiology of inflammation of the urinary tract in pregnant women in the city of Samawa using CHROM agar.

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ABSTRACT

This study was conducted from October 2014 till February 2015 collected samples of urine of a pregnant women weekly from women's hospital and children education in the city of samawa, which have been studied were conducted bacteriological tests on the samples referred to during the 24 hr from the date of collection. The following bacria were isolated and diagnosed on different ratios of presence during the study *Staphylococcus aureus* 38.75%, *Enterobacter cloaca* 36.25%, *Escherichia coli* 26.25%, *Klebsiella pneumonia* 25%, *Staphylococcus epidermidis* and *Streptococcus agalactia* 21.25%, *Proteus mirabilis* 17.5%, *Enterococcus faecalis* 11.25%, *Staphylococcus saprophyticus* 5% and *Pseudomonas aureginosa* 27.5%.

Keywords: inflammation, pregnant, Samawa.

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INTRODUCTION

Urinary tract infection (UTI) is one of the most common bacterial infections in women, and 50% to 60% of adult women experience a UTI during their lifetime(1,2).

UTIs in pregnancy are classified as either asymptomatic or symptomatic. Asymptomatic bacteriuria is defined as the presence of significant bacteriuria without the symptoms of an acute urinary tract infection. Symptomatic urinary tract infections are divided into the lower tract (acute cystitis) or upper tract (acute pyelonephritis) infections. Cystitis is defined as significant bacteriuria with associated bladder mucosal invasion, whereas pyelonephritis is defined as significant bacteriuria with associated inflammation of the renal parenchyma, calices and pelvis (3).

Although the incidence of bacteriuria in pregnant women is similar to that in non-pregnant women, the incidence of acute pyelonephritis in pregnant women with bacteriuria is significantly increased (4). Pregnancy is a unique state with anatomic and physiologic urinary tract changes. While asymptomatic bacteriuria

In non-pregnant women are generally benign, pregnant women with bacteriuria have an increased susceptibility to pyelonephritis (5). The renal pelvis and ureters begin to dilate as early as the eighth week of pregnancy (6) and the bladder it is displaced superiorly and anteriorly. Mechanical compression from the enlarging uterus is the principle cause of hydroureter andhydronephrosis, but smooth muscle relaxation induced by progesterone may also play a role. Smooth muscle relaxation results in decreased peristalsis of the ureters, increased bladder capacity and urinary stasis. Differences in urine pH and osmolality and pregnancy-induced glycosuria and aminoaciduria may facilitate bacterial growth (7).

Symptomatic bacteriuria occurs in 17–20% of pregnancies (8). There are pathophysiological grounds to support a link to pre-labour, premature rupture of membranes (PPROM) and pre-term labour (9). Untreated upper urinary tract infection in pregnancy also carries well documented risks of morbidity, and rarely, mortality to the pregnant woman (9). Two to nine per cent of pregnant women are bacteriuric in the first trimester, a similar prevalence to nonpregnant women of the same age (10, 4). Ten to thirty percent of women with bacteriuria in the first trimester develop upper urinary tract infection in the second or third trimester.

MATERIALS AND METHODS

Materials

All these media were used MacConky agar medium, blood agar base medium, peptone water medium, simmon citrate agar, Triple – Sugar Iron agar, urea agar medium, gelatin liquification medium, motility semisolid medium, (MR-VP) methyl-red voges proskauer, trypton soya agar, mannitol salt agar, nutrient agar, nutrient broth, salmonella-shigella agar, brain heart infusion agar, CHROMagar vibrio medium, CHROMagar pseudomonas, CHROMagar orientation, CHROMagar salmonella, CHROMagar staphylococcus aureus, muller hinton agar, eosin methylene blue agar, thiosulphate citrate bile sucrose agar and brain heart infusion broth. Media were attended according to the company instructions for each one.

Chemical and biological material

oxidase reagent, catalase reagent (11), Voges–Proskauer reagent, methyl red reagent, Kovac's reagent (12) and gram stain (13).

Methods

Sample collection

The study carried out from November 2014 until March 2015, where samples were collected every week. The study sample included 80 pregnant women within the consultative clinic at, Women's Hospital and Obstetricians. in the city of Samawa. Collect urine samples from pregnant women have been conducted a personal interview with each woman through which fill out a questionnaire form which recorded information

for pregnant women, which included: age, months of pregnancy, the number of births, the environment in which pregnant women live, and excluded the pregnant under antibiotic treatment.

The mid-stream urine was taken from sterile bottles, it has been clarified sampling method for all women after wash the area with soap and water and without the use of antiseptics, with an emphasis the bottles to not touch of any part of the body parts in order to prevent contamination of natural flora. 5 ml of urine were taken and concentrate by centrifuge (300 r / min) for 5 minutes, then the upper liquid was disposed and a drop of precipitate was took and examined under the microscope to investigate about: pus cells, bacterial cells, epithelial cells, red blood cells and crystal and casts.

Bacterial analysis:

A- Bacterial isolation

For the purpose of identifying the types of bacteria possible presence in the samples of urine, the taken samples were culture on Brain heart infusion broth for activate the bacteria and isolate the higher number of types that that could potentially presence in samples of urine, because this media is Enriched media and incubated for 24 hours and the temperature 37 C°.

Then activated bacteria were cultured by streaking on Nutrient agar, Blood base agar and Acar MacConkey agar, after incubated for 24 hours at 37 C° secondary culture was done for the growing colonies on Selective media. As each group of bacteria has special selective media for its growth, so that it shows morphological characteristics that distinguish them from others and sometimes inhibit the growth of other groups of bacteria.

B- Bacterial samples, identification

isolates diagnosed depending on Bergey's manual (14) and according to the methods used by Collee et al. 1996 and MacFaddin 2000(15,16).

1. morphological properties:

Included, studying colonies morphological characteristics, shape, size, height, the edges of colonies, surface composition, color, darkness and bloody decomposition properties as well as note some phenomena caused by some types of bacteria and hemoglobin and smell.

2. Microscopic examination:

Include, study the form of the bacteria, clusters and whether bacterial cells being arranged in the form of chains or bunches of grapes or bacilli, as well as can be observed through microscopic examination the forming of spores, as well as response of bacteria to kram dye.

3. Cultural characteristic:

a lot of media were used including differential, selective and specialized in other words it used for the diagnosis of one type of bacteria or a group of bacterial species or genres by observation the cultural characteristic of the isolated bacteria from the samples.

RESULTS AND DISCUSSION

The study showed that the bacterial species that have been isolated during the study showed a variation in the ratios its presence. As show in figure (1).

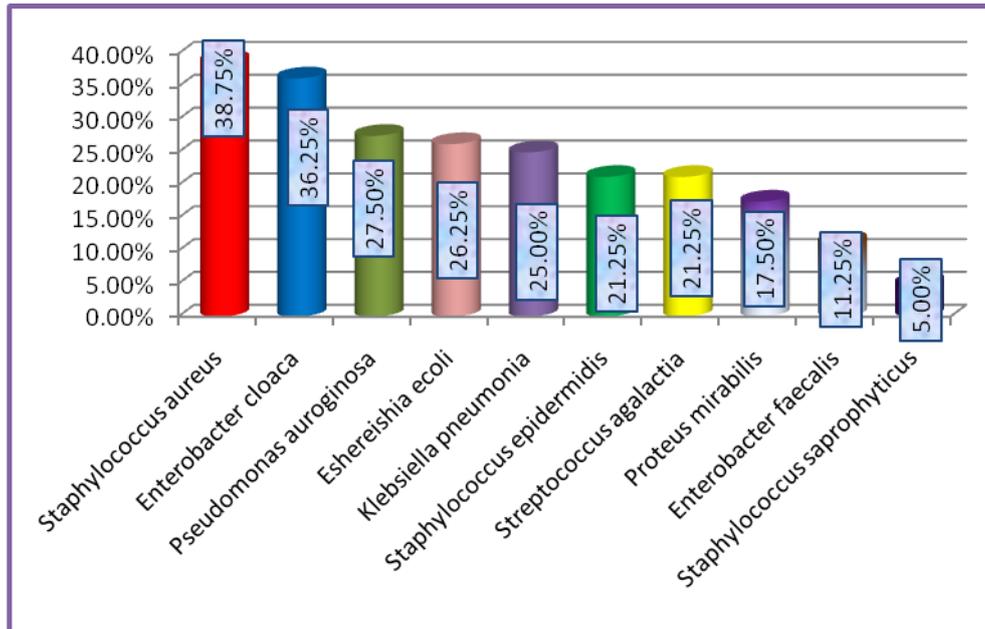


Figure (1): Shows the percentage of bacterial species that isolated from the study.

The study showed that the incidence of urinary tract infection was higher among pregnant women in the age group (18-24 years) compared to other age groups and with 94,28%. Perhaps the reason is due to increased sexual activity during this period of the life of pregnant women associated with the accompanying changes to a woman's pregnancy (17) pointed out that this period of the life of the woman is considered a period of maturity and sexual activity is higher than in other periods of the life of women, as shown in figure(2).

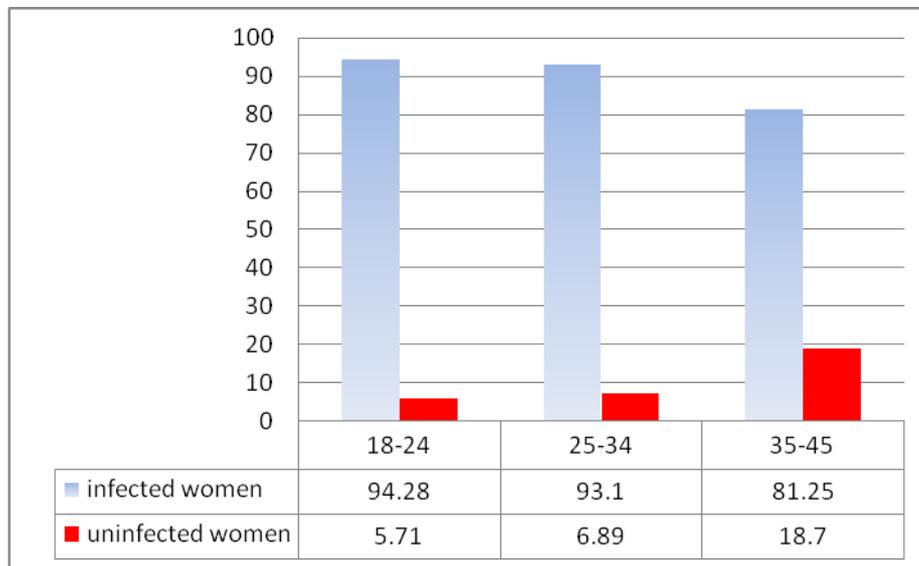


Figure (2): Shows the relationship between age groups, pregnant and the incidence of UTIs.

Also the study showed that the incidence increases with progress of pregnancy the reasons for this may be hormonal secretion of progesterone Which leads to the weakness of the muscle layer of the two ureters, and the large size of the uterus leads to an increase in pressure on the ureters, which impedes the speed of movement of urine inside them. Collect of urine in the bladder and ureters for long periods increases the incidence of the disease and the pregnant urine is a good environment for the growth of microbes this agrees with previous studies that made by Lewis and others in 1992 (18).

CONCLUSIONS AND RECOMMENDATION

The observed in the current study that the ratio of incidence in pregnant women is higher in the third trimester of pregnancy and women with more than four previous births. It was also noted that the age of the pregnant has no effect as the (18-24) years is the common of incidence. The CHROM agar media used in the study are characterized by being highly efficient in isolating and diagnosing bacterial species.

For subsequent studies to search for new bacterial species in addition to investigate for other types of microbes like viruses and fungi. *Staphylococcus aureus* 38.75% , *Enterobacter cloaca* 36.25%, *Escherichia coli* 26.25% , *klebsiella pneumonia* 25%, *Staphylococcus epidermidis*, *Streptococcus agalactia* 21.25%, *proteus mirabilis* 17.5%, *Enterococcus faecalis* 11.25%, *Staphylococcus saprophyticus* 5% *Pseudomonas aereginosa* 27.5% .

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