Maternal Markers for Detecting Urinary Tract Infection among Pregnant Women in Port Said City, Egypt

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1.Introduction

Urinary tract infections (UTIs) are more frequent bacterial infections in humans, caused by recognized bacteria named as uropathogenic species. UTIs are considered a common health problem during pregnancy in the world, particularly in developing countries [1]. Pregnancy is considered one of the susceptibility reasons to increase the risk of urinary tract infection due to the burden of gravid uterus on the ureters producing stasis of urine flow. Moreover, urethral dilatation which occurs in 90% of pregnant women at 6 and 22-24 weeks, gestation. Hormonal and immunological responses during normal pregnancy, Sexual activity, age and the presence of genitourinary defects increase the prevalence of UTI [2,3].

The Aim of the Study:-

This study aimed to identify the maternal markers for detecting urinary tract infection among pregnant women in port said City, Egypt

2. Materials and Methods:-

A cross-sectional descriptive design was performed on 101 pregnant women who attend the obstetrics and gynecology clinic at Port Said general hospital with the inclusion criteria from first September 2017 to end of February 2018. The structured interviewing questionnaire and Laboratory test record were used to collect the data using a purposive sample

Statistical Analysis :-

The raw data were coded and entered into SPSS system files (SPSS package version 19, Chicago, USA Kolmogorov – Smirnov test was used to examine the normality of data distribution. Univariate analyses including t-test and Mann Whitney test were used to test the significance of results of quantitative variables. Chi-Square test, Monte Carlo test and Fisher's Exact test were used to testing the significance of results of qualitative variables. The significance of the results was at the 5`% level of significance

Results:-

In this study, 53.5 % of the studied women had positive bacteria in the urine culture. E. coli (39%) had the highest percentage of the isolated bacteria followed by Staphylococcus aureus (26%). The frequency of micturition, followed by dysuria, lower abdominal pain, urine color change, painful burning sensation, incomplete bladder evacuation were the most common maternal markers, predisposing factors associated with UTI during pregnancy were age, occupation, family income, previous treatment for UTI during current pregnancy, regular urination, diabetes mellitus, and previous urinary tract infection.

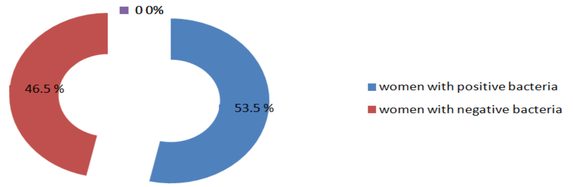


Figure 1. Distribution of pregnant women according to urine culture of bacteria

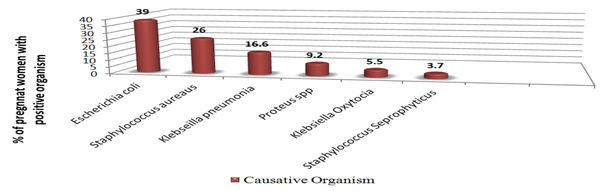


Figure 2. Distribution of bacteria isolated from the urine culture among positive pregnant women (n= 54)

Table (1): Relation between the presence of bacteria in urine culture and the maternal markers among the studied pregnant women (n = 101).

Maternal markers	Women with NEGATIVE culture (n=47)		Women with POSITIVE culture (n=54)		Significance
	No.	%	No.	%	
Symptoms related to urination					
Painful burning sensation	18	38.3	39	72.2	X^2=11.763 P=0.001*
Frequency of micturition	22	46.8	49	90.7	X^2=23.227 P<0.0001*
Dysuria	11	23.4	43	79.6	X^2=31.292 P<0.0001*
Strangury	10	21.3	30	55.6	X^2=12.345 P<0.0001*
Incomplete bladder evacuation	13	27.7	35	64.8	X^2=13.910 P<0.0001*
Lower abdominal pain	23	48.9	40	74.1	X^2=6.766 P=0.009*
Flank pain	16	34.0	32	59.3	X^2=6.407 P=0.011*
Urine color change	12	25.5	40	74.1	X^2=23.706 P<0.0001*
Fever	9	19.1	22	40.7	X^2=5.507 P=0.019*
Shaking chills	7	14.9	19	35.2	X^2=5.413 P=0.02*
Laboratory results					
Pyuria	6	12.8	41	75.9	X^2=40.291 P<0.0001*
Hematuria	1	2.1	16	29.6	X^2=13.577 P<0.0001*

Discussion

The result of the present revealed that more than half of the examined pregnant women had positive urinary tract infection (53.5%) compared to less than half have a negative one. This study is supported by Worie & Eze., 2010 (4) who presented nearly the similar percentage but it was lower than from Niger about 75%. However, prevalence was lower in Ismailia city, Egypt where nearly more than one-fourth of the pregnant women had UTIs (2). Concerning bacteria isolated from the urine culture among pregnant women that found the highest isolated organisms were E. coli (39%) and Staphylococcus aureus (26%) while the lowest was staphylococcus saprophytic(3.7%). These results may be attributed to rises urine pH in pregnancy to a range suitable for the growth of E.coli. Glycosuria gets advanced due to diminished resorption by the collecting loop and tubule of Henle. About 5% of the filtered glucose leaks proximal complicated tubular resorption (5). As regards presenting symptoms most pregnant women have signs and symptoms such as frequency of micturition, dysuria, lower abdominal pain, urine color change, painful burning sensation, incomplete bladder evacuation (90%,79.6%,74.1,74.1,72.2,64.8% respectively) related to presence of bacteria with statistically significant relation which is agreement with (El Lawindi et al results(6).

Recommendation

. To minimize the hazards of pregnancies, regular prenatal care should be engaged and to confirm a healthy pregnancy with delivery of a good healthy baby from a healthy woman. Furthermore, guidelines about preventive measures of UTI for pregnant women should be providing. Since the symptoms are considered reliable markers for detecting UTI during pregnancy, so that proper screening for early detection and provide adequate treatment for infected cases should be implemented. .

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