ISSN: 1813-1638

The Medical Journal of Tikrit University

Available online at: www.mjotu.com

The most important bacterial species that cause Urinary tract infection among married women and some of the effects of assistance to injured

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Keywords:

Pregnant women , Urinary tract Infection, E coli, staph aureus.

A R T I C L E I N F O

Article history:

Received 05 Aug 2020
Accepted 22 Nov 2020
Available online 01 June 2021

ABSTRACT

The study sample included randomly (90) women who are suffering from urinary tract infection, divided into two groups , the first group included (52) women who are pregnant , while the second group consist of (38) non pregnant women. Those women was attending the gynacological department of Salh Al-Din General hospital in Tikrit, for six Months from January till June / 2019.

Sample were collected in sterile containers and then cultured on selective media.

After incubation period, 120 bacterial isolation were identified.

All diagnosis depending on the Microscopic and Macroscopic characteristics

The use of a number of bacterial tests and AP120E tapes and Aplstaph .

Escherichia coli and staphylococcus aureus were identified with no significant differences P>0.05.

There are some causes of urinary tract infection (UTI) such as menopause and use of diaphragm.

DOI: http://dx.doi.org/10.25130/mjotu.26.2020.19

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Introduction:-

The urinary tract infection (UTI) also known as Bacteriuria [1] , is one of the familial diseases. Which is infect the males, females , children and teenagers below 21 years of age [2] .

The most common causes of urinary tract infection in general are different types of organisms such as bacteria , fungi, Viruses and Parasites .

The presence of at least 100.000 bacterial cells /10^5 of the sample. Consider as a guide of bacterial injury occurrence [3] , and the previous studies had been shown that , the rate of infection different according to the different sex; and it is double in the women compare with the men.

It had been found that there is more than 20% of young women who had acute cystitis may progress then to urinary tract infection and most of these cases occur as a result of infected with different bacterial species [4].

Different studies results had been shown, that the gram negative bacterias and its different types was the fundimantal causes of infection which include E.coli . that cause about 80-85% of urinary tract infection with consequence of appear gram positive bacteria like staphcoccus which cause about 5-10% of the infection [5] .

Rarely the infection cause by fungals. Viruses or parasites [6].

The causative of urinary tract infection is the bacteria which usually enter to the urine stream as well as the infection can occur by the blood . lymph and there is suspicion that this bacteria often transmitted to the urinary system from the intestine, because of physio-anatomical structure of the female . it is formed a great dangerous [7] , as well as the women exposed ,more to the infection than men because the urine stream is shorter and nearest to the anal region in the women compare to the men , (urine stream 3 cm in women and , 8 cm in the men [8].

It also found that , the pregnant women are more exposed to the infection specially in the six to 24 weeks of the pregnancy , and about 70% of them suffered from Glycosuria [9].

As other studies documented that some contraceptive procedure help in occurrence of urinary tract infection such as using some of vaginal pills with foam, and other devices that impacted in the vagina (vaginal spiral diaphragm) , as well as some infection appear in the women after Amenorrhoea (Menopause) [10].

The studies confirmed that the chromic prostate infection may cause repeated urinary tract infection , while the bacteria that found in the urine of old age men seem to be do not affect in the infection [11].

Those repeated infection which not company by complication may be treated by small dose of antibiotics, in spite of bacterial resistance with complicated cases , it need long perod treatment with anti-biotics and even with Iv route , if there is no response to the treatment after few days, the case need multiple diagnostic test , these studies recommended that using the anti-biotics like ; cephalosporin or Nitofurntin because they are safest anti-biotics to the women during pregnancy [12].

Materials and methods:-

1- Patient subject and characters :-

The study sample include randomly (90) women those are visited the Salh AL-Din General hospital . form lst January /2019 to 30 June /2010. There age arranged from 18-50 years, the sample divided to two groups , the lst (52) pregnant women , while the 2nd group (38) included non-pregnant women .

Then obtained of information indirect form included the name of patient , age, occupation, the date of birth , the date of marriage , number of children , number of operations done if found , husband occupation, and academic achievement of the couple.

2- Isolation of bacteria:-

A sample of 5-10 ml of mid-stream urine had been taken from each woman , a (90) samples of Urine was collected in 6 months duration (duration of work).

The samples had been cultured on suitable Media. Cultures (Blood agar media, mannitol salt agar Media. Eosin Methylene blue agar Media).

The cultures incubated in 37c° for 24-48 hours, after that , isolated bacterial types has been diagnosed by using the biochemical tests , and to confirmed the diagnosis by API Enter (API20E) , and API staph system was used through this procedures , 120 isolated bacteria had been obtained .

3- Study some factors assist in infection :-

From the information which was obtained from questionnaire cart of each patient, 10/38 of non pregnant women were used contraceptive methods like contraceptive pills. Vaginal diaphragm, and the rest (28) had a high percentage of infection , specially those women in the menopause period or those who suffered suddenly from cessed period before.

Results:-

The results of sample isolation of urine which was taken from the patients that attended the hospital appeared bacterial isolation which included , bacteria which have the same characters of the intestinal bacteria, and other have characters of staph coccus bacteria and by using bacteria and by using a differentiated tests for these types and after doing the documented tests by using strip of API 20E , we obtained negative intestinal bacteria table (1) and by using another strip for staph (API staph) we obtained a two types of staphcoccus grame positive bacterias (table 2). The result pointed to the table number (3), the isolated bacteria that appeared into two Groups:

The first is the intestinal group which consist of E.coli, which was dominated , Klebsialla, proteus and Enterobacten, there number were 85, 8 , 7, 6 isolation

and in percentage 70.83% , 6.67%, 5.83%, and 5% respectively .

The second group was the staphcoccus bacteria which was reached to 14 isolations with parentage 11.67% from all isolations. Table(4), revealed the number of intestinal bacteria reached 106 isolated from the sum of the total isolations and form percentages 39.37%, 60.63% in the pregnant women and non pregnant women respectively.

Escherichia coli was dominant and formed 80.18% from the percentage of the sum of the total isolation of the first group distributed in the pregnant and non pregnant women in the percentage 28.30% and 51,80% respectively

The Enterobacter bacteria was presented in second place in the pregnant and non pregnant women in percentage 3.77% , 1.88% respectively , while the Klebsiala bacteria came in third place , one isolated in pregnant woman and four isolated In non pregnant women and formed 0.94%, 3.77% percentage respectively.

While the proteus bacteria came in fourth place and in percentage 3.77% distributed in 2 isolations in pregnant and non pregnant women equally and in percentage 1.88%

Finally obtained proteus vulgaris bacteria in place sixth in three isolations and in 2.83% distributed in 2,1 in percentage 1.88% , 0.94% in pregnant and non pregnant women respectively.

The results showed in table (5). about 14 isolations appeared staphcocus bacteria and about 10 of it retured to goloden staphcoccus bacteria and its percentage 71.42% from the sum of all isolation

All the isolated bacteria distributed to two and eight with percentage 14.08% 57.14% in pregnant and non pregnant women respectively . while , the staphcoccus saprophyticus had 4 isolations and formed 28.57% distributed equily as two isolations for pregnant and two for non pregnant women and the percentage for each was 14.28%. In addition to the results appeared , the bacterial isolation was more in number in non pregnant than in pregnant women , it formed 74 isolations in non- pregnant women (61.66%) while formed 46 in pregnant women (38.34%).

While the results which was recorded and obtained according to age group among pregnant women (52) and non pregnant women (38) appeared in table (6). 106 was demonstrated from isolated bacteria refered to the intestinal family isolation according to the age groups , and it turned out , about 17 and 6 isolations from the age group (18-29 years) and its percentage was 32.69%. 15.78% form pregnant and non pregnant women respectively.

While isolated about 39, 25 from age group (30-39) years in percentage 75%, 65.78% from pregnant and non pregnant women respectively.

While about 8, 11 isolations was obtained from last age group (40-49) years in percentage 15.38% and 28.94% from pregnant and non pregnant women respectively (table 6).

While table (7) turned out 14 isolations returned to staphcoccus bacteria , isolated according to age groups in pregnant and non-pregnant women.

It was isolated 1,2 from age group (18-29 years) in percentage 1.92% and 5.26% from pregnant and non-pregnant women respectively.

While isolated 1,2 from the age group (30-39) years in percentage 1.92% and 5.26% from pregnant and non – pregnant women respectively.

While isolated 1,2 from the age group (30-39) years in percentage 1.92% and 5.26% from pregnant and non-pregnant women respectively.

While isolated 2 and 6 from the age group (40-49) years in percentage 3.84% and 15.78% from pregnant and non respectivly.

A study of urinary tract infection due to some effects of assistance to injured women specially non-pregnant, it formed on important part even it was small . because of a little number of causes which appeared in the results of table(8).

Effects of some injury with urinary tract infection (UTI) according to age groups appeared that the age group (18-29) year have no any change in all effects , while in age group (30-39) year. appeord one women which have urinary tract infection 2.63% percentage from the total number of women , which appeared in those women who was used

the diaphragm vaginal spiral , while the menapause was not caused any effect.

Finally there was no any recorded of injury with urinary tract infection in the age group (40-49) year in the contraceptive users women , but the tests and follow up demonstrated 5 cases of injured with urinary tract infection , two of them in those women who were used diagram vaginal spiral , while the other 3 cases recorded in women who was in menapause period in 5.26% and 7.89% respectively.

Discussion:-

In general the urine is free form bacteria , virus and fungus infection , it consist of water , minerals and harm substances which getride of it by the kidneys. The urinary tract bacterial infection is a common things but it effects females more than males, and through the isolation and diagnosis , which done, isolated bacterial causes , the first of these causes for urinary tract infection is E.coli bacteria which recorded light percentage between other causative bacteria these results documented with (19,20)

Escherichia coli bacteria formed the high percentage of infection in pregnant and non pregnant women, followed by klebsiela bacterial types , proteus and Enterobacter bacterias . by term of percentage of isolation and causes of urinary tract infection , the infection with E.coli mostly and other Enterobacteria occure often leaving there normal place in the intestine as a part of normal flora of the intestine then it reached the urinary tract.

The urinary tract infection is very familial in the women as comparing with male , because of many causes that not well defined exactly , while the cousses which encourage the infection to occur in the female , it returned to the shortness of urinary stream in the women (about 3 cm) compared to (15 cm) in the men , in addition to the present of urinary tract opening near to the vaginal opening it will help in bacterial entrance to the urinary tract system .

In addition to poor personal hygiene after intercourse , and the injury of cervix and vagina after normal vaginal delivery , in addition to wrong and poor

hygienic procedure after defication from bark to forward, open the way for the bacteria to pass easily to the urinary stream then to the bladder, ureters and kidneys , in addition to anuria after intercourse , in spite of feeling for urination , all of these causes increase the percentage of urinary tract infection in women among men.

Stapheoccus aureus bacteria , and the staphcoccus saprophyticus appeared in pregnant and non pregnant women , because it formed as a second group in isolation , most of the studies had appeared as increase the urinary tract infection caused by staphcoccus aureus and this bacteria come in second place for causing the urinary tract infection[22].

Staphcoccus bacteria being the very successful pathology because it have a multiple fury factors , which enables them to making infection and invade the human being tissue as it have , the capsule and product of enzymes like protease enzyme, in addition to production of multiple substance in front of it is hemolysin [23].

The study results came in consistant with the staphcoccus aureus bacteria considered apart from normal skin flora and may be an important causes in causing the injury when it found in certain places, especially after wounds, this was appeared in the study in multiple cases, that suffer from double injuries either positive or negative bacteria [24]

As well as the studies documented that the presence of staphcoccus sapraphyticus in human is a normal flora in urinary tract and anal region of the females and it cause about 10-20% of the urinary tract infection in the female specially in the adult from 17-30 years , and the injury may be present with in 24 hour after intercourse [25].

In the study the injur by urinary tract infection according to the age groups , the result has shown that there is more effects in that age groups and most of age groups are adult groups (18-40) years specially from marriage pregnant women or non-gregnant women, followed by older group (more than 40) years and finally fallowed by adolescent or young age group (below 17

years)(26). The fact that the adult group was the more effected group that was returned to multiple effected factors like menstrual period which fallowed by changing in bacterial flora , change in PH of vagina, while the old age group, they had the disease which increase directly with increase the age [27]. Other causes in the injuries are the impaired the urinary system function , as well as increase the residual of urine, in bladder in addition to some patient's behavior [28].

Astudy have shown some factors that cause urinary tract infection in women even it was incorrect because of less number of cases, the result reflect that there was no statistical relationship between using of contraceptive methods in all its types and the ocurance of urinary tract infection, but some studies referred that the contraception devices play rule in the injury [29].

While the advance age (menopause) it play very small percentage in the urinary tract infection through decrease the level of estrogen hormone which may cause loss the protection of normal vaginal flora (30) , and the change of PH of vagina as well as this factor will connect with vaginal atrophy which occur in menopause after cessaed the period [30،31].

Table (1) Demonstrate some of differentiated tests for intestinal bacteria, which isolated from urine

number	Tests / Bacteria	Oxidase	Catalase	Motility	urease	I	M	V	C
1	Escherichia coli	-	+	+	-	+	+	-	-
2	Enterobacter spp.	-	+	+	*d	-	-	+	+
3	Kliebsiella spp.	-	+	-	+	-	-	+	+
4	Proteus Spp.	-	+	+	+	-	+	*d	*d

(+) = positive , (-) = negative , (*d) = different.

Table (2) Demonstrate some of differentiated test for Isolated staphcoccus bacteria from urine.

Number	Types of tests	Staph aureus	Staph. Saprophyticus
1	Catalase Catalase	+	+
2	Coagulase	+	-
3	Gelatinase	+	-
4	Oxidase	-	-
5	Sucrose	+	+
6	Urease	+	+
7	Mannitol	+	-
8	Homolysin	+	-

(+) = Positive , (-) = Negative

Table (3) Demonstrated the number and percentage of Isolated bacterial from urine

Number	Isolated bacterial	Total number	The percentage %
1	Eshcherichia coli	85	70.83%
2	Staphylococcus spp.	14	11.67%
3	Klebsiella spp.	8	6.67%
4	Proteus spp.	7	5.83%
5	Enterobacter spp.	6	5%
Total		120	100%

Table (4) Demonstrate number and percentage of Isolated Intestinal bacterial family from urine.

Number	Intestinal bacterial family	Total number (percentage)%	Pregnant women percentage	Non pregnant women percentage %
1	Esherichia coli	85 80.18%	30 28.30%	55 51.88%
2	Enterobacter spp.	6 5.66%	4 3.77%	2 1.88%
3	Klebsiella spp.	5 4.71%	1 0.94%	4 3.77%
4	Protus spp.	4 3.77%	2 1.88%	2 1.88%
5	Klebsiella penmonia	3 2.83%	3 2.83%	0 0.00%
6	Protus vulgaris	3 2.83%	2 1.88%	1 0.94%
Total		106 100%	42 39.37%	62 60.63%

Table (5) Demonstrate the number and percentage of staphcoccus bacteria which Isolated for-urine

Number	Isolated staphcoccus bacteria	Total number (percentage)5	Pregnant women (percentage)	Non pregnant women percentage %
1	staphcoccus aureus	10 71.42%	2 14.28%	8 57.14%
2	Staphylococcus saprophyticus	4 28.57%	2 14.28%	2 14.28%
Total		14 11.66%	4 28.57%	10 71.42%

Table (6) Demonstrate number and percentage of intestinal bacterial family which Isolated from urine according to age group.

Number	Age group year	pregnant		Non pregnant	
		Number	Percentage	Number	Percentage
1	18-29	17	22.97	6	14.28
2	30-39	39	52.70	25	59.52
2	40-49	18	24.33	11	26.20
Total		74	100	42	100

Table (7) demonstrated the number and percentage of staphcoccus bacteria which was Isolated from urine according to the age group.

Number	Age group years	Pregnant women		Non pregnant	
		Number	Percentage	Number	Percentage
1	18-29	1	1.92	2	5.26
2	30-39	1	1.93	2	5.26
3	40-49	2	3.84	6	15.78
Total		4	7.69	10	26.3

Table (8) The relationship between some of the effects of assistance to injured and the urinary tract infection in non pregnant women according to age groups.

Number	Some of effects	Age group /year 18-29		Age group /year 30-39		Age group /year 40-49	
		Number	Percentage	No.	%	No.	%
1	Contraceptive users	-	-	-	-	-	-
2	Vaginal spiral Diphram users	-	-	1	2.63	2	5.26
3	Menapause	-	-	-	-	3	7.89

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