ASSESSMENT OF KNOWLEDGE REGARDING TO URINARY TRACT INFECTION AMONG PREGNANT WOMEN ATTENDING GITWE HOSPITAL RWANDA

[1]BIKORIMANA JEAN PIERRE, [2]NYIRARUKUNDO CLEMENTINE

E-mail: [1]bikorip@yahoo.com, [2]nyirarukundo01@yahoo.com

Abstract - The infection of urinary tract is one of the most common bacterial infections that affect women, as well as 50% to 60% of adult women experience a UTI during their lifetime. It is estimated that in young women there are 0.5 episodes of acute cystitis per person per year. [2]This incidence decreases with age. In postmenopausal women, it is estimated that there are 0.07 episodes of acute cystitis per person per year. Recurrent UTI is defined as uncomplicated UTIs in 6 months or, more traditionally, as positive cultures within the preceding 12 months. This is estimated to affect 25% of women with a history of UTI. Urinary tract infections represent the most common bacterial infection in pregnancy.

Objectives: To assess the knowledge of pregnant women attending Gitwe Hospital on urinary tract infections as well as to demonstrate the risk factors of UTI for pregnant women and to identify the signs and symptoms of UTI for pregnant women.

Material and Methods: An explanatory-analytic study was conducted in 120 pregnant women who referred to the health and treatment at Gitwe hospital. The tool used for data collection was a multiple choice questionnaire consisting of demographic information, knowledge, attitude and self-efficacy. The validity and reliability of the questionnaire had been studied before the investigation. Analysis of the data was conducted, using SPSS software.

Results: About 9.2% of the women observed had high school degree. 45% of confirmed that the UTIs is abundant in married women and less in unmarried with 33.3%, and 50% of women with first pregnancy affected by urinary tract infections, Unprotected sexual intercourse with infected person was the predominant cause of UTI with 20%, furthermore pain in the pelvis identified as the most symptoms of urinary tract infections with 20%.

Conclusion: Urinary tract infection is a prevalent complication of pregnancy that can worsen maternal and perinatal prognosis. The special measures and precautions must be established for fighting against this infection. These measures and precautions should be implemented by Rwanda government, Reference hospital, District hospitals, health care centres. In addition, in villages where the prevalence of UTIs is high, women should be educated and trained about hygienic conditions in their daily life activities.

Keywords - Infection, pregnancy, urinary tract

I. INTRODUCTION

Urinary tract infections are a serious health problem affecting millions of people each year, also urinary tract infections is the second most common type of infection in the body. Moreover, about 8.3 million of patients are affected by UTIs each year. Women are especially vulnerable to UTIs for reasons that are not yet well understood. One woman in five develops a UTI during her lifetime. [8, 17]

UTI is one of the most health problem, as it has been reported among 20% of the pregnant women and it is the most common cause of admission in obstetrical wards.[3,7] Symptomatic and asymptomatic bacteriuria has been reported among 17.9% and 13.0% pregnant women, respectively. Untreated UTI can lead to serious obstetric complications, poor maternal and perinatal outcomes e.g. intrauterine growth restriction, preeclampsia, caesarean delivery and preterm deliveries. [4, 11] During pregnancy, UTI can increase risk of other complications for mother or fetus. Additionally, a UTI is more likely to spread to the kidneys during pregnancy, due in part to ureteral dilation and resultant hydronephrosis. The urethras dilate in 90% of women during pregnancy. The urinary tract includes the organs that collect and store urine and release it from the body which include kidneys, ureters, and bladder, urethra and accessory structures. Various factors that predispose an individual to UTI include:

- Stasis; a major cause of UTI during pregnancy.
- Obstruction of the flow of urine (caused by stone).
- Presence of foreign body such as in-dwelling bladder catheter.
- A decrease in general body resistance such as observed in malnourished individuals,
- Use of immunosuppressive drugs and
- Disease conditions e.g. diabetes [5, 6, 9]

The pathological lesions of UTI include arthritis (inflammation of the urethra); cystitis (inflammation of the bladder) etc. infection of the urinary tract puts

other parts at risk of infection. It has been recognized for some time that asymptomatic bacteriuria is common in pregnancy thus women are at increased risk of UTIs. [10]

II. MATERIALS AND METHODS

Sampling

Sample size: Sample size was calculated by using an estimated prevalence of urinary tract infection in pregnant women attended Gitwe hospital. A total number of 120 pregnant women selected as sample size.

Inclusion and exclusion criteria

Inclusion: Pregnant women aged above 15 years old attending Gitwe hospital in the length of period of seven months, from January to July 2013 were included in this study.

Exclusion: Pregnant women aged below 15 years old attended Gitwe hospital in the length of period of seven months, from January to July 2013 were excluded in the study.

- **Data collection**

Data for this study have been collected through different methods such as documentation and survey, Interview method

Documentation: With this method many different documents such as: books, journal, papers, and reviews.

Survey: Data in this study have been got by the means of interview form. This form was consisted of pregnant women's identification and the series of questions related to urinary tract infection which has been given to the women who attended Gitwe hospital. This questionnaire form was used after giving full explanations to the each adherent; the patient was sampled just after submitting the responded questionnaire form.

Interview method: In this study, data have been got by the means of face to face oral discussion with pregnant women and the information was directly recorded in the record book.

- **Data analysis**

In this study data analysis was done by:

- ✓ Microsoft office Word which is used in treating texts.
- ✓ Microsoft Excel for the tables of the study.
- ✓ Figures and frequency was done with SPSS (Statistical Package of Social Sciences Software)

Statistical analysis

After the results, collected data were entered and treated using Microsoft Excel 2007 for making the distribution tables and graphs; SPSS 16.0 was also used to make the representation and interpretation of the results.

The P. value (PV=0.05) was used for determining the statistical association between two variables. From the association of the two variables; there are Independent variables and dependent variables.

- Dependent variables; the variables were said dependent when the association between them had the P. value less than 0.05.
- Independent variables; the variables were said independent when the association between them had the P. Value greater than 0.05.

III. RESULTS

Table 1: Proportion of pregnant women according to the age

Age of Pregnant women	*Frequency*	*Percentage (%)*
15-19 years old	28	23.5
20-24 years old	46	38.3
25 and above	46	38.2
Total	120	100.0

The above table shows that majority of the pregnant women 38.3% were between age group of 20-24 years old and 25and above 24 years old and 25 and above. The lowest frequency appear between 15-19 years old with 23.5%.

Causes of Urinary tract infection

There are various causes of urinary tract infection that mainly affect pregnant women. The most commonly known causes of UTIs are insufficient water, insufficient of women underwear contact with sunlight after washing, lack of body hygiene, unprotected sexual intercourse with infected person, no urination after sexual contact.

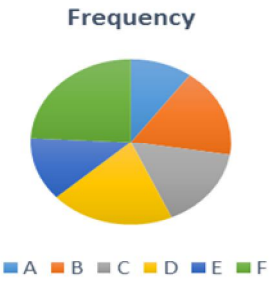


Figure 1: Proportion of pregnant women knoledge about UTIs causes

A: Insufficient water, B: Insufficient of women underwear contact with sunlight, C: Lack of hygiene for women genital organs, D: Unprotected sexual intercourse with infected person, E: no urination after sexual contact, F: No idea about the UTIs causes

In above results, as long as 29(24.2%) of pregnant women did not know UTIs causes, this is the most factor influencing the prevalence of this disease. In addition, about 24(20%) of pregnant women only knew that unprotected sexual intercourse with infected person can cause UTIs, whilst 12(10%) of women know insufficient water as main cause of UTIs

, and 15(12.5%) of pregnancy women knew that no urination after sexual contact is the cause of UTI .

Parity

The parity refer to the number of pregnancy that a woman had, as long as the number of pregnancy increases as well as the experiences of taking care of herself increased.

The figure below shows the frequency of pregnant women

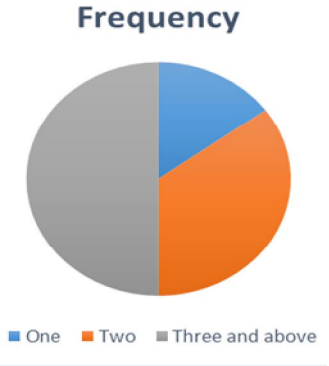


Figure 2: Frequency of parity

parity and their knowledge about the UTIs, therefore 72% of pregnant women who showed adequate information about UTIs were belonged to the women with three and more births. Whilst, 21.6% of pregnant women who knew a little bit about UTIs were belonged to the women at their first pregnancy.

Education background of pregnant women contribute more to the prevention of the disease, since women are educated, the chance of being being affected with UTIs are reduced hence they aware of the control measures and preventives methods against infectious diseases particulary those which more worsen women like UTIs

The figure below shows that huge number of illiterate

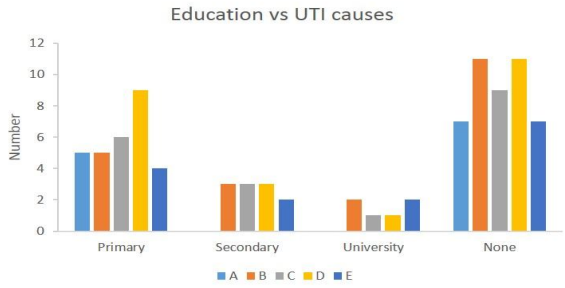


Figure 3: Pregnant women without effective knowledge on UTI causes vs educational background

A: Insufficient water, B: Lack of underwear contact with sunlight, C: Lack of hygiene, D: Unprotected sexual intercourse with infected person and E: No urination after sexual contact.

pregnant women had no idea about the causes of UTIs campared to the other groups whereas the educated pregnant women at university level who did not present effective knowledge about UTIs is very low than others.

The statistical correlation between pregnant women educational level and their effective knowledge to the causes of urinary tract infection is very significant [P.V=0.001]. Furthermore, 26.4% pregnant women confirmed that the unprotected sexual intercourse with infected person is the high predominant cause of UTI in pregnant women.

Symptoms of urinary tract infection

Symptoms of UTIs varies from one person to another, so when the affected person do not aware of them, it can delay the diagnostic of the disease, it is so important to know the minimal frequent symptoms of UTIs, whenever one of them appear rapidly the person should go the doctor for being treated. The figure 4 below shows the knowledge of evaluated pregnant women knowledge regarding to the UTIs symptoms.

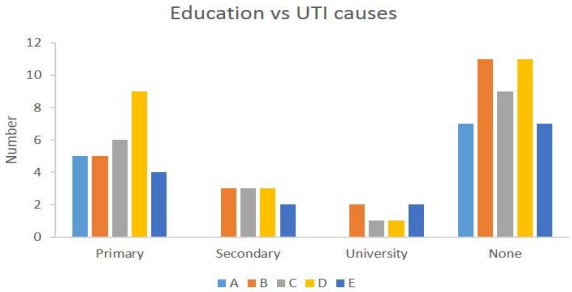


Figure 4: Pregnant women knowledge on UTIs symptoms

In the above figure; 1: Incontinence, 2: Pain in the pelvis, 3: Pus in the urine, 4: Pain and irritation during urination and 5: Nausea and vomiting.

The level of pregnant women who did not have effective knowledge on the UTIs symptoms is very high in women who did not have any educational background.

The statistical correlation between education level of pregnant women their awareness about symptoms of urinary tract infection is very significant [P.V=0.005]. The Incontinence is the predominant symptom of urinary tract known by the pregnant women at 38.3% and least symptoms is pus in urine that was known by 12% of evaluated pregnant women.

Marital status

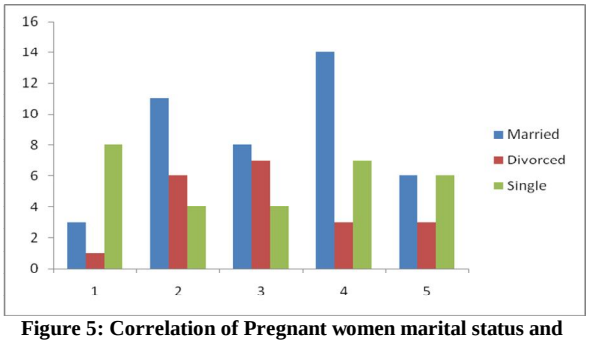


Figure 5: Correlation of Pregnant women marital status and UTIs causes

The status of pregnant women did not play an important role in the UTIs, whether the pregnant women are married, divorced or single.
1: Insufficient water, 2: Lack of underwear contact with sunlight, 3: Lack of hygiene, 4: Unprotected sexual intercourse with infected person, 5: No urination after sexual intercourse.
The statistical correlation between marital status and cause of UTIs is no significant [PV=0.730]. The understanding of UTIs did not depend on the marital status of pregnant women.

DISCUSSION

In this study, we evaluated the knowledge of Rwandan pregnant women who attended Gitwe hospital based on different selected criterias in which some were significant to increase the UTIs in pregnant women whilst others did not show any contribution to the prevalence of UTIs.

1. AGE AND PARITY

In our study the pregnant women said that the urinary tract infections is abundant in women of age varies between 15-24 years of old with 61.6% and 85% in women with one to two births by this were are in agreement with the previous research conducted in Al-Mukalla district, Yemen where the finding results confirmed that There was an increase in frequency of bacteriurea with progress of pregnancy, with 48.8% of infections in the women in the 3rd trimester as well as 75.6% of infected women had 1–3 children. Krcmery et al. [31] demonstrated that the risk factors for UTI in women include sexual intercourse, having a first UTI at an early age, and having a maternal history of UTIs.

2. MARITAL STATUS

Our study shows that higher prevalence of UTI among married individual (45%) than unmarried or single (33.3%). This is agreement with a research conducted Calicut district, Kerala, Thiruvanthapuram, India; where the study indicated that higher prevalence of UTI among married individual (73.5%) than unmarried (15.5%).[32]

3.EDUCATION BACKGROUND

Education background play an important role in the prevalence of UTIs, as shown in figure 3, 4 huge number of pregnant women who did not show effective knowledge about UTIs were found in the group of women who did not have any educational background, by this we are in harmony with Sheikh et al. demonstrated that socioeconomic status, personal hygiene, education level, pregnancy duration, post-coital washing, contraceptive use, and for their research also unprotected sexual intercourse with infected person was the major cause with 37.1% of the pregnant women tested[34]. And In accord with Krcmery et al.demonstrated who demonstrated that the risk factors for UTI in pregnant women having a first UTI at an early age, and having a maternal history of UTIs and for them also unprotected sexual intercourse was predominant cause of UTIs with 43.8% [31].

CONCLUSION

This research was to assess the degree of knowledge among pregnant women attended Gitwe hospital to urinary tract infection. The results empowered us to conclude that:

- The percentage of pregnant women who knows something about urinary tract infection is high with 75.8% and those who did not have any idea is low with only 24.2%. According to these results, the first hypothesis verified as true.
- From the figure 3 and 5 that showed the level of knowledge to the UTIs causes. Insufficient water was recognized by 13.2% of evaluated pregnant women , lack of underwear contact with sunlight (23.1%), lack of hygiene (20.9%), unprotected sexual intercourse with infected person(26.4%) and no urination after sexual contact (16.55%) all these cause have a statistical correlation with the pregnant women knowledge, the second hypothesis is verified and is true.
- According to the figure 3 show that there is a correlation between pregnant women educational background and urinary tract infection symptoms, as result the hypothesis was verified true.

Furthermore, urinary tract infection is a prevalent complication of pregnancy that can worsen maternal and perinatal prognosis. Most of the drugs used for the treatment of UTIs during pregnancy are not associated with an increased risk of birth defects. Early diagnosis followed by immediate and adequate therapy is essential during gestation, avoiding compromising maternal and neonatal health.

Further studies should be performed on a larger sample of pregnant women, where the type of infection, past history of urological problems, recurrence of UTI and the relation between possible risk factors, such as socioeconomic status, personal hygiene, education level, frequency of sexual intercourse, could be examined.

REFERENCES

[1] Delzell JE J., Lefevre ML. Urinary tract infections during pregnancy. Am Fam Physician 2000; 61:713-721.
[2] Le J, Briggs GG, McKeown A, Bustillo G. Urinary tract infections during pregnancy. Ann Pharmacother 2004; 38:1692-1701.

[3] Conde-Agudelo A, Villar J 12. , Lindheimer M. Maternal infection and risk of preeclampsia: systematic review and metaanalysis. Am J Obstet Gynecol 2008; 198:7-22.
[4] Herraiz MA, Hernandez A, Asenjo E, Herraiz I. Urinary tract infection in pregnancy. Enferm InfeccMicrobiol Clin 2005; 23:40-46.
[5] Czaja CA, Hooton TM. Update on acute uncomplicated urinary tract infection in women. Postgrad Med 2006; 119:39–45.
[6] Foxman B, Barlow R, D'Arcy H, Gillespie B, Sobel JD. Self reported incidence of urinary tract infection and associated costs. Ann Epidemiol 2000; 10:509–15.
[7] Hooton TM. A prospective study for risk factors for symptomatic urinary tract infection in young women. N Engl J Med 1996; 335: 468.
[8] Jackson SL, Boyko IJ, Scholes D, Abraham L, Gupta K, Fihn SD. Predictors of urinary tract infection after menopause. Am J Med 2004; 117: 903.
[9] Gopal M, Northington G, Arya L. Clinical symptoms predictive of recurrent urinary tract infection. Am J Obstet Gynecol 2007; 197: 74.e1–4.
[10] Foster RT Sr. Uncomplicated urinary tract infections in women. Obstet Gynecol Clin North Am 2008; 35: 235–48.
[11] American College of Obstetricians and Gynecologists. Treatment of urinary tract infection in non pregnant women. ACOG Practice Bulletin No. 91, March 2008. Obstet Gynecol 2008; 11: 785–94.
[12] Hooton. Recurrent urinary tract infection in women. Int J Antimicrobial Agents 2001; 17: 259–268.
[13] Kraft JK, Stamey TA. The natural history of symptomatic recurrent bacteruria in women. Medicine 1977; 56:55– 60.
[14] Gupta K, Stamm WE. Pathogenesis and management of recurrent urinary tract infecitons in women. World J Urol 1999; 17: 415–20.
[15] Foxman B, Gillespie B, Koopman J, Zhang L, Palin K, Tallman P, et al. (2000) Risk factors for second urinary tract infection among college women. Am J Epidemiol; 151: 1194–205.
[16] Nicolle LE, Bradley S, Colgan R, Rice JC, Schaeffer A, Hooton TM. Infectious Diseases Society of America guidelines for the diagnosis and treatment of asymptomatic bacteriuria in adults. Clin Infect Dis. Mar 1 2005; 40 (5): 643-54.
[17] Connolly A, Thorp JM. Urinary tract infections in pregnancy. Urol Clin North Am 1999; 26 (4): 779– 87.
[18] Christensen F. Which antibiotics are appropriate for treating bacteriuria in pregnancy?J Antimicrob Chemother 2000; 46 (Suppl 1) : 29–34.
[19] Le J, Briggs FF, McKeown A, et al. Urinary tract infections during pregnancy. AnnPharmacother 2004; 38 (10): 1692– 701.
[20] Krcmery S, Hromec J, Demesova D. Treatment of lower urinary tract infection in pregnancy. Int J Antimicrob Agents 2001; 17 (4): 279 –82.
[21] Ovalle A, Levancini M. Urinary tract infections in pregnancy. Curr Opin Urol 2001; 11 (1): 55– 9.
[22] Vazquez JC, Villar J. Treatments for symptomatic urinary tract infections during pregnancy.Cochrane Database Syst Rev 2003; 4: CD002256. p. 1–55.
[23] Renal and urinary tract disorders. In: Cunningham FG, Gant N, Leveno KJ, Gilstrap III LC, Hauth JC, Wenstrom KD, editors. Williams obstetrics. 21st edition. New York7 McGraw-Hill; 2001. p. 1251–72.
[24] Gilstrap III LC, Cunningham FG, Whalley PJ. Acute pyelonephritis in pregnancy: an anterospective study. Obstet Gynecol 1981; 57: 409– 13.
[25] Foxman B, Klemstine K, Brown P. Acute pyelonephritis in US hospitals in 1997: hospitalization and in-hospital mortality. Ann Epidemiol 2003; 13 (2):144– 50.
[26] Wing DA. Pyelonephritis. Clin Obstet Gynecol 1998; 41 (3):515–26.
[27] Mabie WC, Barton JR, Sibai B. Septic shock in pregnancy. Obstet Gynecol 1997; 90: 553
[28] Broman SH, Nichols PL, Kennedy WA. Preschool IQ: prenatal and early developmental correlates. New York7 John Wiley & Sons; 1975.
[29] Broman SH. Prenatal risk factors for mental retardation in young children. Public Health Rep 1987; 102: 55–7.
[30] McDermott S, Callaghan W, Szwejbka L, et al. Urinary tract infections during pregnancy and mental retardation and developmental delay. Obstet Gynecol 2000; 96 (1): 113– 9.
[31] Krcmery S, Hromec J, Demesova D.Treatment of lower urinary tract infection in pregnancy. International journal of antimicrobial agents, 2001, 17 (4): 279–82.
[32] KC. Arul Prakasam, KG. Dileesh Kumar1 and M. Vijayan. A Cross Sectional Study on Distribution of Urinary Tract Infection and Their Antibiotic Utilisation Pattern in Kerala, Vol. 3 (3) Jul – Sep2012
[33] Okonko, I. O. at al, Detection of Urinary Tract Infection (UTI) among pregnant women, South-Western Nigeria, Vol 6(1) 2010, pp. 16-24
[34] Sheikh MA et al. Incidence of urinary tract infection during pregnancy. Eastern Mediterranean health journal, 2000, 6 (2–3): 265–71.
[35] Kasper DL, Fauci AS, Longo DL, et al. Harrison's Principles of Internal Medicine. 16th ed. New York, NY: McGraw Hill; 2005.

★★★