LOWER GENITAL TRACT INFECTION IN INFERTILE WOMEN

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Abstract:

Genital tract infection is the most common cause that makes women see the gynecologists and this is also one of the important reasons leading to infertility. Early diagnosis and prompt treatment of genital infection is one of the effective managements to prevent infertility later on. **Objective:** This study aims to identify the lower genital tract infection in cases of infertility, and understand the involved factors. **Subjects and Methods:** descriptive cross – sectional study on 92 cases of infertility visited the Hue University Hospital through clinical examination, wet-mount and gram staining, as well as microbiological culture from vaginal discharge, Chlamydia testing with samples from the cervix, serological tests for syphilis also were done. **Results:** Prevalence of lower genital tract infection is 42.4%. The mean age of subjects is 29.29 ± 5.97, the average time of infertility is 2.83 ± 2.47.The most common disorder is vulvo-vaginal infection; the popular pathogens are bacterial vaginosis, Candida and Chlamydia. Factors associated with lower genital tract infection such as age, occupation, education, geography, classification of infertility, routine vaginal douching, water source for hygiene, history of lower genital tract infections. **Conclusions:** the lower genital tract infections account for a significant proportion in the case of infertility. The diagnosis and treatment of these disorders is necessary to get pregnancy easier as well as to prevent the fetus from infection.

1. BACKGORUND

In 2007, infertility rate counts for 8-15% of couples who are in reproductive age worldwide, equivalent to 50-80 million people [9]. Although, the impressed and strong development of science, especially assisted reproductive techniques, increase the success rate in infertility treatment, highly cost is still problem to many patients.

Concerning to reasons of infertility, genital tract infection is one of the most common causes [9]. Lower genital tract infection not only changes the physio-chemical characteristics of vaginal area, affect semen quality but also to be a source of higher genital tract infection. It is known that 35% of female infertility is due to the sequel of tubal infection. This disorders can occur in 15% women in reproductive age and 2,5% women is unable to get pregnant [16]. In almost cases, signs and symptoms of higher genital tract infection are not notable and specific, that why many cases are under-diagnosed. The chronic infection and inflammation in pelvic area, peritoneum of fallopian tube and uterus impacts the normal movement of ovulated ovum, secrets the regulator elements of immune, diminishes the development and implantation of embryo. [9].

Sexual transmited diseases raise the influence of infection to genital tract. Chlamydia trachomatis and gonorrhea

infection damage the columna epithelium, that is the basis for pelvic inflammation caused by anaerobic bacteria. Although gonorrhea infection trends to reduce, Chalmydia trachomatis infection is still high and is a main cause of tubal infertility [7].

This study aims to identify the lower genital tract infection in cases of infertility, and understand the involved factors.

2. SUBJECTS AND METHODS

Total of 92 cases with infertility diagnosed followed WHO standards, attended Hue University hospital during the time from April, 2010 to April, 2011 recruited to the study. Exclusion criteria include menorrhagia, beeing treated genital tract infection with systematic or local antibiotics within 2 weeks or disagree to be enrolled to study population.

Study method is descriptive, cross-sectional. All women were interviewed followed a prepared protocol, containing administrative data, history of obstetrics and gynecology, history of genital tract infection and previous management. A standardized physical and pelvic examination was then carried out included asking for vulvovaginal complaints, inspected the vulva, vagina and cervix, vaginal pH measurement and microscopic inspection of vaginal wet mount and gram stain. Chlamydia infection is screened by PCR from cervical discharge and serological diagnosis for syphilis was indicated for all cases.

3. RESULTS

3.1. General characteristics of the study population and relation to genital tract infection

Table 1. General characteristics and relation to genital tract infection

Catagories	Infection				Total	
	Yes		No			
	Number	% rate	Number	% rate	Number	% rate
Age						
≤ 24	4	28,6	10	71,4	14	15,2
25- 29	19	46,3	22	53,7	41	44,6
30- 34	14	63,6	8	36,4	22	23,9
≥ 35	2	13,3	13	86,7	15	16,3
Occupation						
Intellectual	15	30,0	35	70,0	50	54,3
Manual labor	24	57,1	18	42,9	42	45,7
Education						
Illiterate	1	33,3	2	66,7	3	3,3
Pupil grade	21	42,0	29	58,0	50	54,3
College -, University level	17	43,6	22	56,4	39	42,4
Geography						
Urban	21	56,8	16	43,2	37	40,2
Rural area	18	32,7	37	67,3	55	59,8
Type of infertility						
I	28	44,4	35	55,6	63	68,5
II	11	37,9	18	62,1	29	31,5

Douche vagina						
Yes	3	75.0	1	25.0	4	4.3
No	37	42,0	51	58,0	88	95.7
Water for living						
Tap water	24	46.6	31	53.4	55	59.8
From well	13	37,1	22	62,9	35	38.0
From pool	1	100	0	0	1	1.1
From rain	1	100	0	0	1	1.1
History of GTI						
Yes	28	71.8	11	28.2	39	42.2
No	11	20,8	42	79,2	53	57.6

The mean age of study population is 29.29 ± 5.97; common work is intellectual.

3.2. The lower genital tract infection

3.2.1 Form of lower genital tract infection

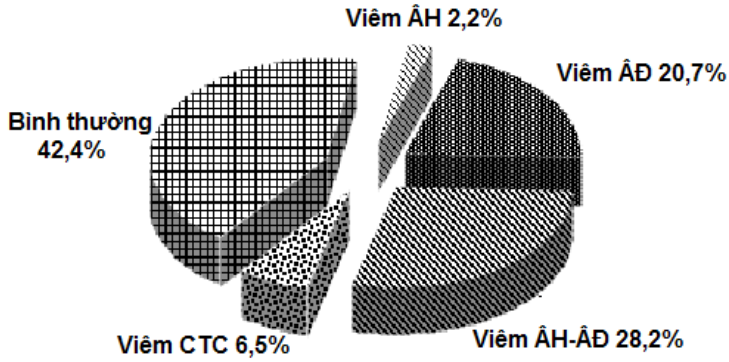

Figure. Form of lower genital tract infection

3.2.2. Results of wet-mount

Table 2. Results of wet-mount

Results	Normal		Abnormal	
	Number	% rate	Number	% rate
pH	82	89.1	10	10.9
Leucocytes	59	64.1	33	35.9
Pathogens				
Doderlein	51	55.4	41	44.6
Mixed flora	79	85.9	14	14.1
Clue cells	74	81.5	17	18.5
Yeast	82	89.1	10	10.9
Trichomonas	90	97.8	2	2.2

3.3. Results of Gram stain

Table 3. Results of Gram stain

Gram stain	No		Yes	
	Number	% rate	Number	% rate
Gram (+) bacilli	48	51.1	44	48.9
Gram (-) bacilli	36	39.1	56	60.9
Gram (+) cocci	56	60.7	36	39.3
Gram (-) cocci	89	96.7	3	3.3
Mix	48	52.2	44	47.8

3.4. Pathogens of genital tract infection diagnosed by different methods

Table 4. Pathogens of genital tract infection

Pathogens	Number	% rate (n=92)
Bacterial vaginosis	17	18,5
Candida	11	12,0
Trichomonas	2	2,2
Chlamydia	6	6,5
Syphilis	1	1,1
Streptococcus	2	2,2
Total	39	42.4

3.5. Relation of pathogens and type of infertility

Table 5. Relation of pathogens and type of infertility

Pathogens	Infertility I		Infertility II	
	Number	% rate	Number	% rate
Baterial vaginosis	7	41.2	10	58.8
Candida	6	54.5	5	45.5
Trichomonas	0	0	2	100
Chlamydia	3	50.0	3	50.0
Syphilis	1	100	0	0
Streptococcus	1	50.0	1	50.0
Total	18	46.2	21	53.8

There are differences in percent rate between infertility type I and II but not statistically significant.

4. DISCUSSION

The present study aims to identify the lower genital tract infection in cases of infertility, based on literature that infection is a common and important cause of infertility. Different from our early supposition, the rate of genital tract infection in case of infertility is really high (42,45%), but it is not higher than that of women without infertility. A study on genital tract infection in reproductive-age women, Pham Đinh Hung has reported a rate of infection only 21,37% [2]. However, a similar study by Hoang Thi Luong noted a rate 53,33% [4] or by Tran Thi Duc, Cao Ngoc Thanh, discovered a rate 47,92% [1]. Another study by Le Lam Huong in pregnant women, genital tract infection rate is up to 78,57% [3]. Our study leads to a conclusion that the rate of genital tract infection in infertility women is not higher than that of reproductive-age women. It is similar to report of Okonofua et al in Nigeria [10].

Involving in pathogens, Chlamydia trachomatis counts for 6,5% and no one has gonorrhea. They are accepted to be the causes of pelvic inflammatory diseases [11]. The presence of Chlamydia trachomatis, an obligatory intracellular bacteria, damage the

columna epithelium of uterus, fallopian tubes, that is the basis for pelvic inflammation caused by anaerobic bacteria. The rate of Chlamydia infection in this study is not high and there is no difference between infertility I and II. It may result from the size of study population. However, bacterial vaginosis is the most common disorder (18,5%) and this is a source of anaerobic bacteria for pelvic inflammation follow Chlamydia or gonorrhea infection.

Detective capactity of pathogens by wet-mount is 74,4% (29/39 cases) and remain pathogens need to be diagnosed by further cultures. Clearly, wet-mount is a very simple, prompt, effective and also sparing method for diagnosis of infection, orients clinicians further steps just at out-patient section. It is recommended to equip materials to do this work in all gynecologic examination room including for infertility section.

In general characteristics of study population, the mean age is 29,29 ± 5,97, evarage interval of infertility is 2,83 ± 2,47 years. The difference of year of age is statistically significant with p=0,014. It means that infection rate of reproductive-age women increases by age until 35. Occupationally, manual work seems to be more risk of genital tract infection than intellectual significantly (57,1% vs 30%; p=0,0086). This result expressed not only the risk of occupation but also relate to educational level, living condition, hygien condition and also sexual safe. The significant relation is also recognized between current and history of genital tract infection (62,1% vs 20,8%, p=0,022). Some pathogens appear to have higher recurrent rate such as fungus, bacterial vaginosis or Chlamydia, result to severe sequel to genital tract if not treated satisfactory. Vaginal douche is a bad habit that can cause infection easily 75%. Similarly, water source from pool, from rain is not safe enough for living. Anyway, because of small size of study population, the differences are not statistically significant. This is a limit of the study. Futher study with larger population should be carried out to reveal these differences and confirm the role of risk factors to reproductive health of women.

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