นิพนธ์ต้นฉบับ • Original Article

การตรวจคัดกรองการติดเชื้อ Chlamydia trachomatis ในอวัยวะสืบพันธุ์ส่วนล่างของสตรีที่มีบุตรยาก

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Screening for Chlamydia trachomatis in the Lower Genital Tract of Infertile Women

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วัตถุประสงค์: เพื่อหาอุบัติการณ์ของการติดเชื้อ Chlamydia trachomatis ในอวัยวะสืบพันธุ์ส่วนล่างของสตรีที่มีบุตรยาก และรวบรวมข้อมูลทางลักษณะประชากรและการเจริญพันธุ์ของสตรีที่มีบุตรยากในโรงพยาบาลศรีนครินทร์ มหาวิทยาลัยขอนแก่น

ชนิดของการวิจัย: การวิจัยเชิงพรรณนา

สถานที่ที่ทำวิจัย: ห้องตรวจคู่สมรสมีบุตรยาก แผนกผู้ป่วยนอก โรงพยาบาลศรีนครินทร์ คณะแพทยศาสตร์ มหาวิทยาลัยขอนแก่น

กลุ่มตัวอย่าง: สตรีที่มารับบริการตรวจรักษาที่ห้องตรวจผู้มีบุตรยากในระหว่างวันที่ 1 มิถุนายน พ.ศ. 2544 ถึงวันที่ 1 มิถุนายน พ.ศ. 2545

วิธีดำเนินการวิจัย: รวบรวมข้อมูลจากสตรีที่เข้าร่วมโครงการจำนวน 70 ราย ทำการส่งตรวจหาเชื้อ Chlamydia trachomatis ในมูกบริเวณปากมดลูก ในการมารับการตรวจรักษาครั้งแรกด้วยวิธี PCR และ GENPROBE และบันทึกข้อมูลทางด้านลักษณะประชากรและการเจริญพันธุ์ในแบบบันทึกห้องตรวจผู้มีบุตรยาก

Objective: To determine the prevalence of chlamydial infection in the lower genital tract, patient demographics and reproductive health, among infertile women being treated at Srinagarind Hospital, Khon Kaen University, Thailand.

Design: Descriptive study

Setting: Infertility Clinic, Department of Obstetrics and Gynecology, Srinagarind Hospital, Khon Kaen University, Thailand.

Subjects: Infertile women attending the Clinic between June 2000 and June 2001.

Methods: Screening for Chlamydial trachomatis was initiated at Infertility Clinic of Srinagarind Hospital in June 2000. Specimens were taken by endocervical swabs at the first visit from 70 consecutive patients for PCR and GENPROBE testing. Demographic and reproductive health data were recorded.

Outcome measurement: The prevalence of chlamydial infection in the lower genital tract in infertile women being treated at the Hospital.

ตัววัดที่สำคัญ: อุบัติการณ์การติดเชื้อ Chlamydia trachomatis ในอวัยวะสืบพันธุ์ส่วนล่างของสตรีที่มีบุตรยากในโรงพยาบาลศรีนครินทร์

ผลการวิจัย: อุบัติการณ์การติดเชื้อ Chlamydia trachomatis ในอวัยวะสืบพันธุ์ส่วนล่างคิดเป็นร้อยละ 1.43 หรือพบ 1 ราย ในสตรีที่มีบุตรยากที่ทำการศึกษาทั้งหมด 70 ราย อายุเฉลี่ยของประชากรเท่ากับ 29.6 ปี ส่วนใหญ่เป็นสตรีที่มีบุตรยากชนิดปฐมภูมิร้อยละ 81.4 ระยะเวลาเฉลี่ยของการมีบุตรยาก 4.6 ปี มีสตรีที่มีบุตรยากร้อยละ 28.6 เคยคุมกำเนิดมาก่อน โดยวิธีที่พบมากที่สุดคือการใช้ยาเม็ดคุมกำเนิดชนิดฮอร์โมนรวม คิดเป็นร้อยละ 85 ของประชากรที่มีการคุมกำเนิดมาก่อน

สรุปการวิจัย: สตรีที่มารับการตรวจรักษาภาวะที่มีบุตรยากที่โรงพยาบาลศรีนครินทร์ มีการติดเชื้อ Chlamydia trachomatis ในอวัยวะสืบพันธุ์ส่วนล่าง คิดเป็นร้อยละ 1.43

คำสำคัญ: การติดเชื้อ Chlamydia trachomatis ในอวัยวะสืบพันธุ์ส่วนล่าง, สตรีที่มีบุตรยาก

Results: The overall chlamydial infection rate was 1.43% (0.04-7.70 95% CI). The average of studied women was 29.6 years. The proportion of primary and secondary infertility was 81.4 and 18.6 %, respectively. The average length of infertility was 4.6 years. Only 28.6% of the consecutive women had previously used contraception of which 85% was a combined contraceptive tablets.

Conclusion: The prevalence of chlamydial infection in the lower genital tract of infertile women at Srinagarind Hospital was 1.43%.

Keywords: Chlamydial infection, Infertile women

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Introduction

Chlamydia trachomatis infection of the genitalia is a sexually transmitted disease. Complications such as pelvic inflammatory disease[1-2], infertility due to abnormal fallopian tube abnormalities[3, 4] and ectopic pregnancy [5] are suggestive of chlamydial infection. A British study documented that about £50 million was spent in treating these complications of Chlamydia infection[6].

In 1996, the British Royal College of Obstetricians and Gynecologists advised that non-pregnant women under 35 planning to use intrauterine instruments should be pre-screened for chlamydial infection. If such screenings were not available, the women should receive prophylactic antibiotics[7].

In 1998, a group of research doctors for chlamydial infection in Britain advised screening for couples under treatment for infertility[8].

In 1999, a study showed that infertile women with antibodies for *Chlamydia trachomatis* (IgG) and being treated with gamete intrafallopian transfer (GIFT) had an increased risk of embryo implantation failure[9].

The guidelines for the management of infertility indicate that women seeking infertility treatment need to be assessed for tubal and uterine factors by hysterosalpingography or hysteroscopy. If there is a history of a previous chlamydial infection, there is an increased risk of spreading the organism to the upper genital tract with sequelae including abnormal pelvic anatomy and decreased fertility.

We devised our study to determine the prevalence of chlamydial infection in the lower genital tract, patient demographics and reproductive health, among infertile women being treated at Srinagarind Hospital, Khon Kaen University, Thailand.

Materials and methods

Screening for *Chlamydia trachomatis* was conducted at Srinagarind Hospital's Infertility Clinic between June 1, 2000 and June 2001. The Ethics Committee of the Faculty of Medicine, Khon Kaen University, approved the study protocols and candidates consented before joining the study. We excluded women with bloody contamination and/or previous antibiotic treatment not more than 4 weeks prior examination.

Endocervical swabs were performed at the first visit of 70 consecutive women and these were tested using

polymerase chain reaction (PCR) and GENPROBE. The participants also received appropriate management of their infertility problem. The demographic and reproductive health data were recorded and analyzed using STATA Version 6.

Results

The study included 70 consecutive infertile women, averaging 29.6 years of age. Only one woman (1.43%; 95% CI, 0.04-7.70) tested positive (by PCR though negative by GENPROBE) for chlamydial infection (Table 1).

Table 1 Age of infertile patients with the results of PCR and GENPROBE screening for chlamydial infection

Age (yr.)	GENPROBE Number of positive test	PCR Number of positive test
20 - 25	0	0
> 25 - 30	0	0
> 30 - 35	0	1
> 35	0	0

Most of our patients worked in agriculture or were employee (34.3%), had an income between 60,000 and 90,000 Baht per year per family (44.3%), and had a Bachelor degree (44.3%) (Table 2).

Table 2 Demographics and reproductive health of infertile women

Data	Number	Percent
Age		
Between 20 and 25 years	15	21.4
Between 25 and 30 years	24	34.3
Between 30 and 35 years	24	34.3
> 35 year	7	10.0
Summary	70	100.0
Career		
Agriculture	24	34.3
Employee	24	34.3
Government officer	8	11.4
Trader	7	10.0
State enterprise officer	4	5.7
House wife	3	4.3
Summary	70	100.0
Income per year per family (Baht)		
Between 10,000 and 30,000	10	14.3
Between 30,000 and 60,000	14	20.0
Between 60,000 and 90,000	31	44.3
> 90,000	15	21.4
Summary	70	100.0

Data	Number	Percent
Home town		
Northeast	66	94.3
Other region	4	5.7
Summary	70	100.0
Education level		
Primary education or equivalent	7	10.0
Secondary education or equivalent	14	20.0
High school or equivalent	15	21.4
Bachelor degree	31	44.3
Higher than Bachelor degree	3	4.3
Summary	70	100.0

The data collection regarding contraception indicated the absence of any method among 71.4% of respondents. Those using contraception took oral combined contraceptive tablets for periods of 6 months or less (65%). Primary infertility accounted for 88.6% of cases and had lasted between 4 and 6 years (Table 3).

Table 3 Reproductive health data

Data	Number	Percent
Method of contraception		
No previous contraception	50	71.4
Oral combined pill	17	24.4
Condom	2	2.4
DMPA	1	1.4
Summary	70	100.0
Duration of contraception		
Between 1 and 6 months	13	65.0
Between 6 and 12 months	5	25.0
> 12 months	2	10.0
Summary	20	100.0
Type of infertility		
Primary	62	88.6
Secondary	8	11.4
Summary	70	100.0
Duration of infertility		
Between 1 and 2 years	22	31.4
Between 2 and 3 years	17	24.3
Between 3 and 4 years	6	8.6
Between 4 and 5 years	1	1.4
> 5 years	24	34.3
Summary	70	100.0

Discussion

The prevalence of chlamydial infections in the lower genital tract of infertile women in Europe, the United States[10,11,12,13] and Asia[14,15,16] (Table 4) are well documented. In Europe and the United States, the prevalence of chlamydial infections stand between 1 and 5 while it is between 10 and 28 percent in China and Israel. This disparity is possibly due the greater level of development, education and income in the former countries over the latter.

Interestingly, the overall chlamydial infection in our study subjects was only 1.43%. However, many of the subjects were well educated with an above average income, so they could afford the cost for transportation and treatment at a tertiary (as opposed to a rural primary) hospital. These factors seem to have limited the prevalence of chlamydial infection.

We used two laboratory methods to assess each specimen: 1) PCR as performed in the Department of Microbiology, Faculty of Medicine, Khon Kaen University; and, 2) GENPROBE (for confirmation) at the Microbiology Lab, Venereal Disease Center, Khon Kaen. The GENPROBE is the standard method of this center and the technicians are highly experienced. The results demonstrated that the PCR method was more sensitive than the GENPROBE test[17,18].

Table 4 Literature review on the prevalence of Chlamydia trachomatis of the lower genitalia in infertile women

Reference	Year	Location	Cases	Age	Test	Prevalence
Gump *et al.*	1982	USA	203	20 - 39	culture	0
Moller *et al.*	1984	Denmark	116	20 - 39	culture	3.4
Anestad *et al.*	1987	Norway	105	24 - 41	culture	1.0
Samra *et al.*	1994	Israel	135	19 - 41	culture	10.4
Aspock *et al.*	1995	Germany	100	20 - 40	PCR	5.0
Lu *et al.*	1997	China	147	22 - 40	PCR	22.45
Yu *et al.*	1998	China	262	20 - -45	culture	28.64

Our observations corroborate previous studies, wherein a decrease in infection by Chlamydia trachomatis was associated with better education on safe sex and sexually transmitted diseases. This knowledge should be made more available to people of lower socioeconomic status who have the greater risk for chlamydial infection. Should prevention be successful, the communityís health would be improved and national resources be conserved.

The limitation to our study was the decreased prevalence compared with other studies of a similar sample size. The results reveal a widening of the 95% confidence interval, thereby decreasing the reliability of the study. Our study population had a higher education and income than the general Thai population. A follow-on study should compare the characteristics of the population and the cost effectiveness of the screening procedure and develop appropriate standard methods.

Conclusion

Our study was prospective and all of the data collected and the method statistically appropriate. The prevalence of chlamydial infection in the lower genital tract of infertile women being treated at Srinagarind Hospital was 1.43%.

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