

**INTERNATIONAL JOURNAL OF ADVANCES IN
PHARMACY, BIOLOGY AND CHEMISTRY****Research Article****Detection of *Chlamydia trachomatis* infection
and its association with ectopic pregnancy among
pregnant ladies attending Omderman maternity
hospital: A case study.****LEMYA A. KADDAM¹, MAZIN O. MOHAGER², ADAM A. ADAM³ and
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Kingdom of Saudi Arabia.³Department of Microbiology, Faculty of Medicine, Al Neelain University, Khartoum, Sudan.⁴Department of physiology and pathology, Faculty of Medicine, Karary University,
Khartoum, Sudan.**ABSTRACT**

Chlamydia trachomatis infection is a worldwide-distributed sexually transmitted infection. Rapid detection of Chlamydial infections in the medical laboratory is very important. The aim of the present study is to detect IgG and IgM in serum of pregnant women, and to detect the presence of *C. trachomatis* antibodies in women with ectopic pregnancy. Three hundred blood samples were collected from pregnant women with a gestational age between 25 and 36 weeks. Anti- *Chlamydia* IgG and anti- *Chlamydia* IgM were detected using ELISA technique. The result revealed that the rate of anti *Chlamydia* IgG among pregnant women was 17 (5.6%) and 4 (1.3%) were positive for both anti- *Chlamydia* IgM and IgG. This study showed a correlation between *C. trachomatis* positivity and ectopic pregnancy. Screening program of *C. trachomatis* is very importance in the prevention of long term problems.

Keywords: Ectopic pregnancy, *Chlamydia trachomatis*, pelvic, ELISA.

INTRODUCTION

Each year an estimated 340 million new cases of curable sexually transmitted infections occur worldwide, with the largest proportion in the region of South and South East Asia, followed by subSaharan Africa and Latin America and the Caribbean¹. *Chlamydia trachomatis* infections are the most prevalent sexually transmitted bacterial infections recognized throughout the world. World

Health Organization estimated that there were 92 million new cases worldwide and the incidence of infection has continued to increase each year in both industrialized and developing countries.² Correct diagnosis of infection with *C. trachomatis* is essential as false negative results may have significant impact on societal health³. Chlamydial infections has been associated with a higher risk of acquiring HIV-1

infection as well as cervical cancer and adverse outcomes with pregnancy. In addition, genital infection in pregnant women increases the risk of preterm delivery, can be passed on to the baby during vaginal delivery and may result in eye and lung infections in the new born^{4,5,6}. For these reasons, early correct diagnosis of infection with *C. trachomatis* is essential to prevent long-term sequelae associated with prolonged infection.

MATERIAL AND METHOD:

Ethical approval

The study was approved by the Al Neelain Medical Research Committee and Omdurman Maternity Hospital ethical committee. All participants signed informed consent forms prior to enrolment in the study.

Study design

This is a case study conducted to determine the frequency of *Chlamydia trachomatis* in pregnant women during the period June 2011 to August 2013.

Clinical samples

A total of 300 blood specimens were collected from pregnant women with a gestational age between 25 and 36 weeks that attending Omdurman Maternity Hospital Antenatal Care unit.

ELISA test

The ELISA test done by using EUROIMMUNE kit, briefly, basis of antigen preparation were BGM- cells infected with the *C. trachomatis* of the serotype K. The microplate well were coated with purified MOMP antigen (major outer membrane protein), which is a transmembrane protein in the outer membrane of the elementary bodies. The test kit contains microtitre strips, each with eight break-off reagent wells coated with *C. trachomatis* antigens. In the first reaction step, diluted patient samples were incubated with the wells. In case of positive samples specific IgG \IgM antibodies will bind to the antigens. To detect the bound antibodies, a second incubation is carried out using an enzyme -labelled anti-human IgG \IgM (enzyme conjugate) which is capable of promoting a colour reaction.

Photometric measurement of colour intensity was made at a wavelength of between 620 nm and 650 nm within 30 minutes of adding the stop solution. The intensity of the formed colour is proportional to the concentration of antibodies against *C. trachomatis* antigens.

The colour intensity obtained from the automated ELISA reader was interpreted by qualitative analysis

by the formula extinction value of the control extinction of calibrator² interpretation:

Ratio < 0.8: negative

Ratio ≥ 0.8 to > 1.1 : borderline

Ratio ≥ 1.1 positive

RESULT

Anti Chlamydia IgG and IgM were detecting using ELISA technique was done for all the subjects enrolled in the study.

Out of 300 pregnant women enrolled in the study, 17 samples (5.6%) were positive for *C. trachomatis* IgG only, while 4 samples (1.3%) were positive for both IgM and IgG, with different trimester (Table 1).

A relationship was detected between a number of ectopic pregnancy and presence of *C. trachomatis* antigen where as the P.value was (0.002) (Table 2).

DISCUSSION

C. trachomatis infection is a worldwide-distributed sexually transmitted infection. The actual number of cases is thought to be more than 2.8 million per year³. According to the World Health Organization, new cases of chlamydia infection have been estimated globally to be 92 million². Screening program of *C. trachomatis* is very importance in the prevention of long term problems. Many studies have confirmed that ELISA technique was preferred for detection of Chlamydia antibodies IgG and IgM^{5,7}. Furthermore, it has been reported that the presence of specific IgA antibody may serve as good diagnostic tool for monitoring active infection while IgG level remained for longer period⁸. The percentage of *C. trachomatis* reported in this study was 5.6 % by IgG, and 1.3% by IgM. Upon reviewing the literature different studies has yielded different result; for instance in 8.7% of Saudi pregnant women IgG antibodies were detected⁹. In India IgG antibodies were present in 10% of pregnant women¹⁰. In Iraq 5.5% and 3.3% of pregnant women were found positive for IgG and IgM respectively⁸. In This study a relationship was detected between a number of ectopic pregnancy and presence of *C. trachomatis* antigen where as the p.value was (0.002) this was agree with Abdolreza *et al* who found The prevalence of serum antibodies of *C. trachomatis* in women with ectopic pregnancy was 48.0%, while it was 16.3% in women with normal intrauterine pregnancy¹¹, but this result disagree with result published by Mridula *et al* whom stated that ectopic pregnancy is not associated with Chlamydia infection¹².

CONCLUSION

The rate of *C. trachomatis* infection among pregnant woman in this study was 5.6 % and 1.3% using anti-

chlamydia IgG, and IgM antibodies respectively. There is correlation between *C. trachomatis* infection and ectopic pregnancy. Screening program of *C. trachomatis* is very importance in the prevention of long term problems.

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Table 1

Detection of *Chlamydia trachomatis* among pregnant with different trimester.

| Term of pregnancy | Number | IgG (ELISA) | IgM (ELISA) |
|-------------------|--------|-------------|-------------|
| First | 100 | 5 | none |
| second | 100 | 5 | 2 |
| third | 100 | 7 | 2 |

Table 2

Detection of *Chlamydia Trachomatis* among pregnant with previous ectopic pregnancy.

| No of still birth | Number | IgG (ELISA) | IgM (ELISA) |
|-------------------|--------|-------------|-------------|
| Non | 101 | 3 | 1 |
| One | 131 | 7 | 1 |
| Two or more | 68 | 7 | 2 |

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