Brief Report

Sensitivity of Polymerase Chain Reaction to Determine *Chlamydia trachomatis* Eradication Rate with Levofloxacin Therapy in Patients with Chlamydial Cervicitis

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ABSTRACT

Background: For the treatment of chlamydial cervicitis, a 7- to 14-day regimen with appropriate antibacterial agents (eg, macrolides, tetracycline, fluoroquinolones) has been recommended. Many clinicians in Japan have determined the eradication rate of cervical *Chlamydia trachomatis* by polymerase chain reaction (PCR) prior to 3 weeks after treatment because patients' second visit rate has been low.

Objective: The aim of this study was to assess the sensitivity of PCR to detect *C trachomatis* at various time points after antibacterial treatment.

Methods: The presence of *C trachomatis* was determined by PCR on days 8, 15, and 22 after the end of treatment. All patients received a 7-day course of levofloxacin 300 mg/d.

Results: The eradication rates of cervical *C trachomatis* were 90.0%, 97.5%, and 100.0% on days 8, 15, and 22 after treatment, respectively.

Conclusion: Based on data from this study, the appropriate method and time to assess the therapeutic efficacy for chlamydial infection is PCR at 3 weeks after treatment. (*Curr Ther Res Clin Exp.* 2003;64:375–377) Copyright © 2003 Excerpta Medica, Inc.

Key words: *Chlamydia trachomatis*, levofloxacin, polymerase chain reaction.

INTRODUCTION

Chlamydia trachomatis is one of the most common sexually transmitted pathogens worldwide.¹ A 7- to 14-day regimen with appropriate antibacterial agents (eg, macrolides, tetracycline, fluoroquinolones) has been recommended for the treatment of chlamydial cervicitis.² Many clinicians in Japan have determined the eradication rate of cervical *C trachomatis* using polymerase chain reaction (PCR) prior to 3 weeks after treatment because patients' second visit rate has been low.

The purpose of this study was to assess the sensitivity of PCR to detect *C trachomatis* at various time points after antibacterial treatment.

PATIENTS AND METHODS

Women with chlamydial cervicitis diagnosed using PCR in the Department of Obstetrics and Gynecology at either Gifu University School of Medicine (Gifu, Japan) or Gihoku General Hospital (Yamagata, Japan) from January 1999 to December 2002 were eligible for the study. Patients were not eligible for the study if they were infected with any pathogen other than *C trachomatis* or if they had been treated previously for a chlamydial infection. All patients provided written informed consent to participate in the study. This prospective study was approved by the local ethics committee of Gifu University School of Medicine.

C trachomatis was detected by physicians and laboratory technicians using specimens obtained by swabbing the cervix. Chlamydial cervicitis was treated with an appropriate fluoroquinolone, levofloxacin, at a dose of one 100-mg tablet TID (total dose, 300 mg/d) for 7 days. Therapeutic efficacy was assessed using PCR determination of *C trachomatis* on days 8, 15, and 22 after treatment. No additional antimicrobial chemotherapy was allowed until after the specimens had been obtained on day 22.

RESULTS

Forty women (mean [SD] age, 24.5 [6.7] years; mean [SD] body weight, 45.8 [4.8] kg) were included in the study. This group comprised 13 office workers, 10 university students, 9 commercial sex workers, 5 high school students, and 3 homemakers. The eradication rates of cervical *C trachomatis* with levofloxacin therapy were 90.0% (36 patients), 97.5% (39 patients), and 100.0% (40 patients) on days 8, 15, and 22 after treatment, respectively.

DISCUSSION

The DNA of organisms already killed by antibacterials might be detected by PCR because of its high sensitivity.^{3,4} This phenomenon could be problematic, particularly if PCR is performed near the end of the treatment cycle, which

might be too early to detect eradication and therefore might lead to excessive use of antibacterial drugs. Data reported in this study suggest that the use of PCR to determine treatment efficacy would be better performed 3 weeks after treatment.³ Also, *C trachomatis* might persist in the pelvic cavity, leading to continued infection even after treatment.

A limitation of our study was that we could not compare patients treated with different antimicrobial agents because of the difficulty obtaining informed consent during the frequent outpatient visits required for follow-up investigation.

CONCLUSION

Based on data from this study, the appropriate method and time to assess the therapeutic efficacy for chlamydial infection is PCR at 3 weeks after treatment.

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