

ABSTRACT

Introduction: Gonorrhea remains as one of the most common sexually transmitted diseases found in developing countries. Dual treatments using third generation cephalosporins such as cefixime or ceftriaxone and combined with azithromycine or doxycycline are now become recommended therapy in many regions. Over the last decade, strains of *Neisseria gonorrhoeae* have been reported to develop high levels of resistance against several antimicrobial agents such as cefixime, ceftriaxone, azythromycine, and doxycycline. The purpose of this study is to evaluate susceptibility of *Neisseria gonorrhoeae* to cefixime, ceftriaxone, azithromycine and doxycycline by disk diffusion test

Methods: The study design was descriptive laboratory observational cross sectional from April 2017 to August 2017. Twenty isolates *Neisseria gonorrhoeae* taken from outpatients, who visited 7 Community Health Centre in Surabaya and met the inclusion criterias, were tested with cefixime, ceftriaxone, azythromycine, and doxycycline diffusion susceptibility test. Samples were taken from 20 patients with positive complaints of purulent secretions. After that, Gram stain and gram negative diplococcus were obtained, bred on Thayer Martin Media and incubated at 37 ° C for 24 to 48 hours. Once the *Neisseria gonorrhoeae* grew a colony on Thayer Martin Media, a definitive test was performed to identify the *Neisseria gonorrhoeae*. This definitive test included oxidation test and glucose fermentation test. As a result, a total of 20 samples expressed positive *Neisseria gonorrhoeae*. Then colonies on Thayer Martin media were bred on Mueller Hinton media for sensitivity test. After incubation for 24 to 48 hours, the antibiotics formed inhibit zone that can be measured in diameter.

Results: In vitro cefixime diffusion susceptibility test against *Neisseria gonorrhoeae* isolates obtained 7 of 20 isolates (35%) were resistant to cefixime, 4 of 20 isolates were resistant to ceftriaxone, 1 of 20 isolates were resistant to azythromycine and all isolates were resistant to doxycycline.

Conclusion: This study concludes that a number of *Neisseria gonorrhoeae* strains were found to be resistant to cefixime, ceftriaxone, azythromycine and doxycycline by diffusion test in Surabaya. Hence, further research such as dillution test is required to obtain the increasing of *Neisseria gonorrhoeae* resistance to cefixime.

Key words: cefixime, ceftriaxone, azythromycine, doxycycline, diffusion susceptibility test, *Neisseria gonorrhoeae*