

RESEARCH ARTICLE

Bacteriological and Antibiotic Susceptibility Profile of Urinary Tract Infection among Online Motorcycle Drivers in Jakarta, Indonesia

Ida Effendi, Thomas Robertus, Jihan Samira, Arleen Devita, Widyasari Kumala, Isa Bella

Department of Microbiology, Faculty of Medicine, Universitas Trisakti, West Jakarta, Indonesia

Abstract

Urinary tract infection (UTI) is a bacterial infection that contributes significantly to morbidity rates. UTI is a health concern due to multidrug-resistant (MDR) organisms. Therefore, the profile of bacteria and antibiotic susceptibility patterns are very important to know in order to make the best treatment choice. Working as an online motorcycle (*ojol* driver) carries a risk of urinary tract infections. Online drivers are assumed to often hold their urination for short or long periods. The descriptive study with a cross-sectional design was conducted to obtain the prevalence of urinary tract infections, bacteria profile, and antibiotic susceptibility in urine specimens collected from Jakarta *ojol* drivers in September 2022–Maret 2023. Of 98 midstream urine specimens, 17 samples are considered to have UTI (17.34%). The identification of the 17 isolates shows that the microorganisms' distribution was more likely to be caused by gram-positive than gram-negative bacteria (70.60%). The causative bacteria were coagulase-negative *Staphylococcus* (17.65%), *Escherichia coli* (11.76%), and *Enterococcus faecalis* (11.76%). Our results showed that the prevalence of urinary tract infections in *ojol* drivers is high with the distribution of the causative organisms by coagulase-negative *Staphylococcus*, *Escherichia coli*, and *Enterococcus faecalis* and still showed good susceptibility to narrow-spectrum antibiotics such as cotrimoxazole.

Keywords: Antibiotic susceptibility, bacteria, *ojol* drivers, urinary tract infection prevalence

Introduction

It has been estimated that about 150 million people worldwide develop urinary tract infections each year, with high social costs in terms of hospitalizations and medical expenses.¹ Urinary tract infections (UTI) are a significant cause of morbidity in infant boys, older men, and females of all ages.² Urinary tract infection is an infection that is often found in women aged 16–35 years; 10% of these women suffer from UTI annually, and more than 40–60% suffer from UTI at least once during their life. Recurrent infections are common; almost half will get a second infection within one year. Urinary tract infections occur at least four times more often in women than men. In men, UTI generally occurs at the age of over 50 years; infection under 50 years occurs with a lower prevalence.³

A definite diagnosis of urinary tract infection can be established if significant bacteriuria is found. Bacteriuria is a general term indicating the presence of bacteria in the urine on

laboratory findings.⁴ Based on the findings of the number of bacteria in the urine, it was significant bacteriuria if the urine culture showed the growth of pure microorganisms more than $\geq 10^5$ colony forming units/ml (CFU/ml) in two consecutive sampling.^{5–7} Bacteriuria with a bacterial count of 1,000–100,000 CFU/ml accompanied by a clinical presentation can be managed according to urinary tract infections. Asymptomatic bacteriuria occurs when bacteria are found in urine culture with a count of $>10^5$ CFU/ml and do not cause clinical symptoms of UTI.^{5,7} Asymptomatic bacteriuria is not defined as a urinary tract infection.⁸ Gram-negative, gram-positive, and fungi can be found in bacteriuria. A single bacterial species causes most cases of UTI. Symptomatic bacteriuria (UTI) is generally caused by uropathogenic colonization of the urinary tract.⁹ Uropathogenic *Escherichia coli* (UPEC) is the dominant infectious agent in UTI. Meanwhile, infection by the gram-positive bacteria *Staphylococcus saprophyticus* is less common. The use of antibiotics in cases of

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Correspondence: dr. Ida Effendi, Sp.M.K. Department of Microbiology, Faculty of Medicine, Universitas Trisakti. Jln. Kyai Tapa No. 260, West Jakarta 11440, Special Capital Region of Jakarta, Indonesia. E-mail: idaeffendi@trisakti.ac.id