The susceptibility rates of flomoxef against extended-spectrum beta-lactamase-producing organisms

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1. Introduction

Flomoxef belongs to cephapenic antibiotics, which cannot be hydrolyzed by extended-spectrum beta-lactamase (ESBL). Hence, flomoxef can be used to treat infections caused by ESBL-producing organisms. This study was conducted to evaluate whether the susceptibility rates of flomoxef against ESBL-producing organisms were decreasing year by year.

2. Methods

At a regional hospital in southern Taiwan, from 2012 to 2015, all isolates of ESBL-producing organisms reported by clinical laboratory were enrolled in this study. Screening of ESBL production was according to the recommendation by Clinical and Laboratory Standards Institutes. The screened organisms included *Escherichia coli*, *Klebsiella pneumoniae/oxytoca*, and *Proteus mirabilis*, as well as double disk method was used as a method for screening. Disk diffusion method was used for antimicrobial susceptibility testing of flomoxef. The interpretive criteria of flomoxef recommended by the manufacturer were as follows. The zone size of susceptibility was or more than 18 mm, that of intermediate resistance was between 13 and 17 mm, and that of resistance was or less than 12 mm. All intermediate-resistant results were regarded as resistant results in this study.

3. Results

A total of 3954 isolates of ESBL-producing organisms, including 2912 ESBL-*E. coli*, 895 ESBL-*K. pneumoniae/oxytoca*, and 147 ESBL-*P. mirabilis*, were enrolled. The susceptibility rates of flomoxef against these ESBL-producing organisms were 71.7% (515 of 718), 64.8% (667 of 1029), 64.7% (669 of 1034), and 75.4% (844 of 1120) in 2012, 2013, 2014, and 2015, respectively.

4. Discussion

As a result of this study, the numbers of ESBL-producing organisms were increasing year by year; however, the susceptibility rates of flomoxef against these organisms did not evidently decline, indicating that flomoxef can be used to treat infections caused by ESBL-producing organisms, and flomoxef-resistant ESBL-producing organisms may be not easily selected. However, further studies may be necessary to confirm these viewpoints.