Trends of quinolone-resistant and/or ESBL producing *Esherichia coli* isolated from community-acquired urinary tract infection

Yoshitsugu NASU, Daisuke TANAKA, Noriko KOSAKA (Okayama Rosai Hospital, Urology, Japan), Morito SUGIMOTO, Atsushi TAKAMTO (Okayama University Hospital, Urology, Japan)

**Introduction and objectives**

*Esherichia coli* (E. coli) is the most popular causative bacteria of community-acquired urinary tract infections (UTIs). Recent studies have shown an increase in the prevalence of resistant *E. coli*. We report the incidence of quinolone-resistant *E. coli* (QR-EC) and/or extended spectrum beta-lactamase producing *E. coli* (ESBL-EC) isolated from UTIs.

**Methods**

1. Study period: October 2009 - June 2017
2. Clinical and microbial data were collected from UTI patients, whose E. coli (>10^5 CFU/ml) was isolated. 3. UTI classification: (1) Uncomplicated UTI (2) Complicated UTI (a) Without urinary catheter (b) Catheter indwelt
4. Identification of *E. coli* and MIC determination
5. Fluoroquinolone-resistant *E. coli* (QR-EC) MIC of levofloxacin ≥4μg/ml
6. Extended spectrum beta-lactamase producing *E. coli* (ESBL-EC)

**Results**

1. In this study period, 1,083 strains of *E. coli* were isolated from UTI patients. Out of 1,083 strains, 314 strains were isolated from uncomplicated UTI and 769 strains were from complicated UTI. The overall prevalence of QR-EC and ESBL-EC were 28.8% and 13.6%, respectively.
2. Chronologically, the prevalence of QR-EC in the first period, the second period and the last period were 25.2%, 32.3% and 31.0%, respectively and those of ESBL-EC were 10.1%, 13.7% and 19.4%, respectively.
3. The prevalence of QR-EC and ESBL-EC among complicated UTI patients were 34.2% and 14.8%, respectively. Among uncomplicated UTI patients, the prevalence of QR-EC and ESBL-EC were 15.6% and 10.8%, respectively. Chronological study in uncomplicated UTI patients, the prevalence of QR-EC of the first period, the second period, and the last period were 11.3%, 17.9%, 22.1%, and respectively and those of ESBL-EC were 5.0%, 14.1%, 19.5%, respectively.
4. Among 13 patients with acute uncomplicated cystitis, whose QR and ESBL-EC isolated, 2 patients encountered clinical failure by fluoroquinolone therapy.

**Conclusions**

1. Among uncomplicated UTI patients, the isolation of QR and/or ESBL-EC has been increasing in the last period and the prevalence of QR-EC and ESBL-EC were 22.1% and 19.5%, respectively.
2. We have to pay attention to resistant *E. coli* when we choose antibiotics for the treatment in patients with uncomplicated UTI.