MP23-15

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

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Introduction and objectives

Escherichia 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* (>=10^4CFU/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
 MicroScan WalkAway40plus™ (Siemens)
5. Fluoroquinolone-resistant *E. coli* (QR-EC)
 MIC of levofloxacin ≧4μg/mL
 Clinical and Laboratory Standards Institute criteria
6. Extended spectrum beta-lactamase producing *E. coli* (ESBL-EC)
 ESBL producing ability; Double disk method
  CAZ,AZT,CTX≧2μg/ml or CPDX MIC≧8μg/ml
  CVA contained ESBL definition disc (Eiken-kagaku)
7. Chronological study on prevalence of resistant *E. coli* ;
 (1) The first period (October 2009 - November 2012)
 (2) The second period (December 2012 - March 2015)
 (3) The last period (April 2015 - June 2017).

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%, respectively and those of ESBL-EC were 5.0%, 14.1%, 19.5%, respectively.

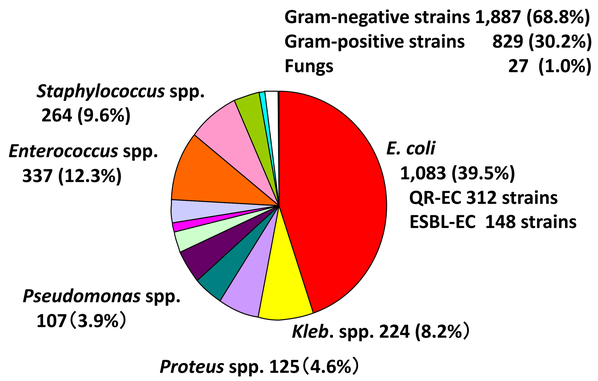
4. Among 13 patients with acute uncomplicated cystitis, whose QR and ESBL-EC isolated, 2 patients encountered clinical failure by fluoroquinolone therapy.

Conclusions

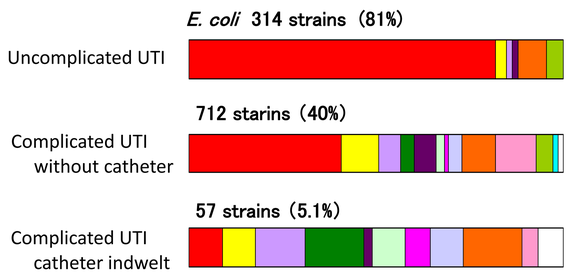
1. Among uncomplicated UTI patients, the isolation of QR and/or ESBL-EC has been increasing in the last period and the prevalence of QR-EC and ESBL-EC were 22.1% and 19.5%, respectively.

2. We have to pay attention to resistant *E. coli* when we choose antibiotics for the treatment in patients with uncomplicated UTI.

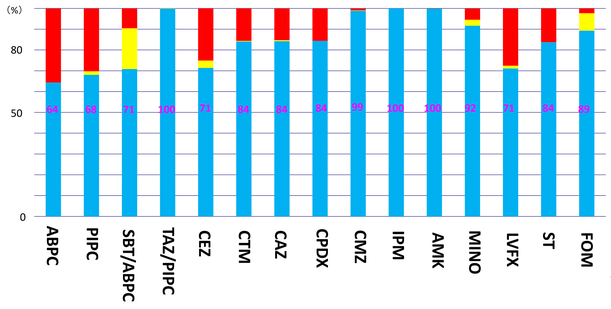
Overall isolates（2,743 strains）



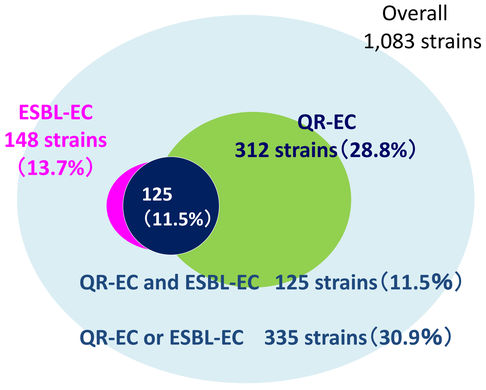
Isolation of *E. coli* by UTI classification



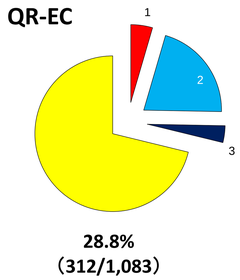
Drug sensitivity rate of overall *E. coli*



Prevalence of QR-EC and ESBL-EC

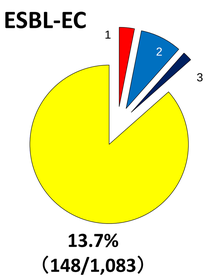


Prevalence of QR-EC by UTI classification



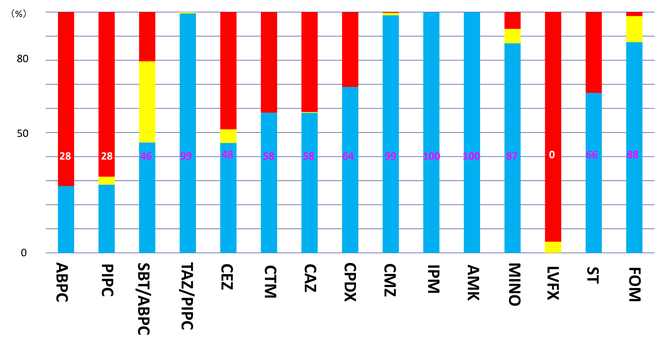
	prevalence
1. Uncomplicated (49 strains)	15.6%（49/314）
Complicated (263 strains)	34.2%（263/769）
2. catheter (-) (225 strains)	31.6%（225/711）
3. catheter (+) (38 strains)	65.5%（38/58）

Prevalence of ESBL-EC by UTI classification

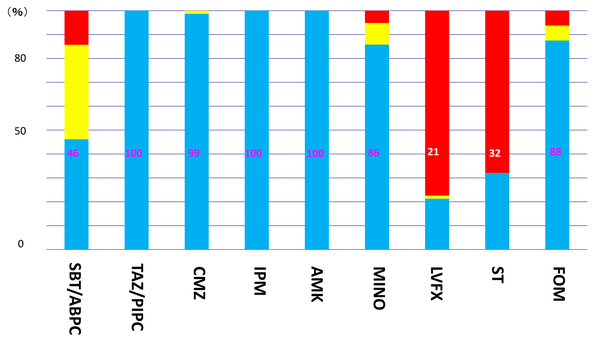


	prevalence
1. Uncomplicated (34 strains)	10.8%（34/314）
Complicated (114 strains)	14.8%（114/769）
2. catheter (-) (93 strains)	13.1%（93/711）
3. catheter (+) (21 strains)	36.2%（21/58）

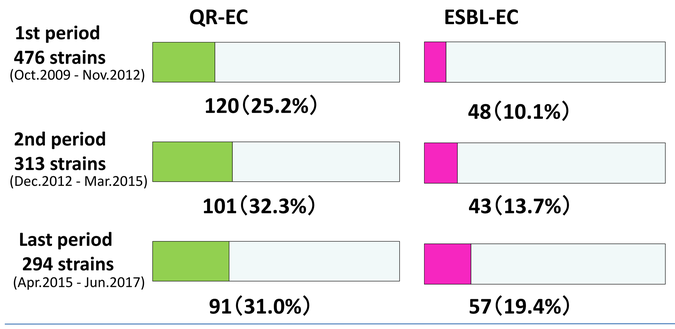
Drug sensitivity rate of QR-EC



Drug sensitivity rate of ESBL-EC

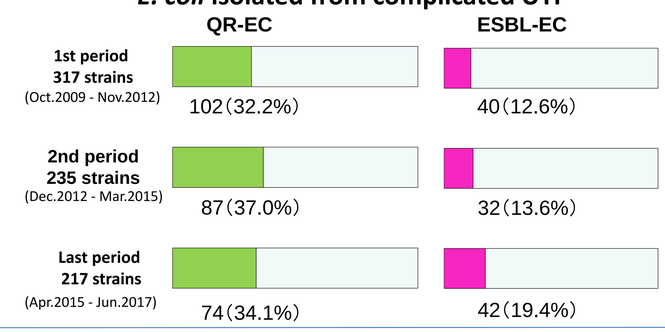


Chronological study on prevalence of resistant *E. coli*



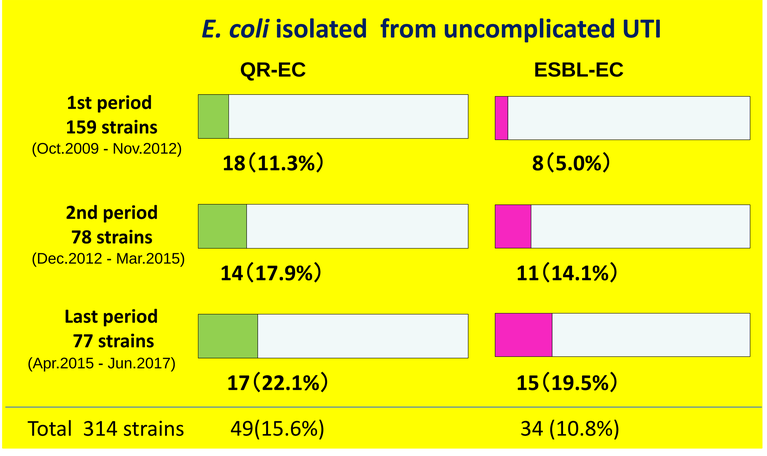
Total 1,083 strains	312 (28.8%)	148 (13.7%)

E. coli isolated from complicated UTI



Total 769 strains	263 (34.2%)	114 (14.8%)

E. coli isolated from uncomplicated UTI



Total 314 strains	49(15.6%)	34 (10.8%)

Clinical outcomes of acute uncomplicated cystitis patients whose resistant *E. coli* isolated

13 patients with QR and ESBL-EC

Therapeutic agents	Outcomes: Cure or improve	Outcomes: Failure
Oral cefem	4	
Fluoro-quinolone	2	2
Faropenem	5	
	11	2