27th ECCMID Vienna, Austria 22 – 25 April 2017
The congress of ESCMID

Session: EV029 Urinary tract infections and uropathogens

Category: 3b. Resistance surveillance & epidemiology: Gram-negatives

22 April 2017, 08:45 - 15:30
EV0562

Local resistance profile of bacteria causing uncomplicated urinary tract infection in woman (LORE study)

Anette Friedrichs*[1], Miriam Zwirner[2], Ralf Bialek[3], Tanja Roth[4], Thomas Lorentz[5], Ursula Ballies[6], Harald Erichsen[7], Annegred Krenz-Weinreich[8], Angela Wencke[9], Peter Suehring[10], Sabine Schubert[2], Helmut Fickenscher[11]

[1]*University Hospital Schleswig-Holstein; Internal Medicine and Department of Pharmacy*

[2]*University Hospital Schleswig-Holstein; Institute of Infection Medicine*

[3]*Mvz Labor Dr. Kramer und Kollegen*

[4]*Department of Infection Control; University Hospital Schleswig-Holstein*

[5]*Labor Dr. Krause & Kollegen*

[6]*Labor Staber*

[7]*Kielab*

[8]*Überörtliche Gemeinschaftspraxis für Laboratoriumsmedizin Gbr*

[9]*Public Health Department, City of Kiel*

[10]*Praxisnetz Kiel*

[11]*Universitätsklinikum Schleswig-Holstein, Campus Kiel; Institut F. Med. Mikrobiol. U. Virologie, Inst. F. Infektionsmedizin*

Background: Little is known about the antibiotic resistance pattern of bacteria causing uncomplicated urinary tract infection (UTI) in women in Germany because routine bacterial culture and antibiotic resistance testing is not recommended in the outpatient setting. The German clinical guidelines for treatment of

uncomplicated UTI list fosfomycin or nitrofurantoin as drugs of first choice, whereas cotrimoxazole and amoxicillin should rather be avoided due to resistance >20% of bacterial isolates in former studies.

The LORE study aimed to define a local resistance profile for uncomplicated UTI. Furthermore, alternative drugs were to be found for first-line treatment for uncomplicated UTI.

Material/methods: During the period of twenty-two months, twenty-nine practitioners and gynaecologists of the outpatient sector in Kiel, unites in the "Praxisnetz Kiel" recruited female patients between 16 to 65 years with clinically diagnosed uncomplicated UTI. Exclusion criteria were pregnancy, diabetes, or chronic diseases previous antibiotic therapy in the past two weeks before the current episode of UTI. The urine samples were tested according to the EUCAST rules for the following antibiotics: ampicillin or amoxicillin without or with beta-lactamase inhibitors, piperacillin, ceftazidime, cefpodoxime, imipenem or meropenem, ciprofloxacin, cotrimoxazole, fosfomycin, and nitrofurantoin. The study was supported by the Robert Koch-Institute, Berlin.

Results: A total of 896 were included into the study. 491 samples (55%) showed a significant bacterial load (> 100,000 colonies per ml), 269 samples were sterile (30%). Gram-negative bacteria were isolated from 521 samples (58%) and Gram-positives in 216 cases (24%). *Escherichia coli* was isolated most frequently (n = 450; 70% of all samples with bacterial isolates), followed by *Klebsiella spp., Proteus sp., Citrobacter sp., Enterobacter sp.,* and *Morganella morganii*. Including all samples, sensitivity to fosfomycin was 98%, to nitrofurantion 94%, and to cotrimoxazole 86%. Regarding only Gram-negative bacteria, sensitivity to fosfomycin reached 98%, to nitrofurantoin 95%, to cefpodoxime 95%, to ciprofloxacin 96%, and to cotrimoxazole 85%, respectively.

Conclusions: With this study, a local bacterial resistance pattern for uncomplicated UTI in women in the region of Kiel was determined. The sensitivity rates of 95% for cefpodoxime and 86% for cotrimoxazole in Gram-negative bacteria suggest their use instead of the presently recommended drugs fosfomycin and nitrofurantoin - in order to save fosfomycin for severe infections and to avoid adverse effects of nitrofurantoin.