ANTIBIOTIC DRUG PRESCRIPTION IN COMMUNITY-ACQUIRED URINARY TRACT INFECTION: A RUSSIAN MULTICENTER PHARMACOEPIDEMIOLOGICAL SURVEY

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Background

Community-acquired urinary tract infection is a common disorder that is often treated in the primary care setting. It is of substantial importance that clinicians be aware of appropriate treatment of CA-UTI. Recent studies confirming a relation between the consumption of antibiotics and bacterial resistance have been published.

• Table 1. Percent distribution of antimicrobials prescribed to treat CAP-UTI in different Russian cities

Antimicrobials	Smolensk	Ekaterinburg	S-Petersburg	Rostov-on-Don
Aminoglycosides	7,9	-	3,8	8,3
Aminopenicillines	8,4	25	5,7	16,7
Nitrofurantoin	13,1	20	18,9	-
Quinolones	1	-	22,6	-
Co-trimoxazole	19,9	5	13,2	-
Tetracyclines	2,1	-	5,7	8,3
Fluoroquinolones	31,4	25	5,7	8,3
Nitroxoline	7,9	20	18,9	50
Chloramphenicol	2,6	-	1,9	8,3
Cephalosporins	3,1	0	1,9	0
Other	0,5	-	-	-
(metronidasole,				
oxacilline, macrolides)				

Objective

This study was designed to determine the pattern of antibiotic prescription in community-acquired urinary tract infection (CA-**UTI**) in different Russian cities.

Methods

A prospective longitudinal pharmacoepidemiological study on prescribing patterns of antimicrobial drug in patients with community-acquired urinary tract infection (CAUTI) was conducted in 4 Russian cities – Ekaterinburg, Smolensk, Rostovon-Don and S-Petersburg. Patient data were collected during a 1year period starting January 1, 2000. Data collected on patients included demographics, concomitant diseases, type of UTI, UTI treatment.

Results and discussion

Data were collected on 376 patients. The most frequently prescribed antimicrobials for CAP UTI in Russia were fluoroquinolones – 25.0%, co-trimoxazole – 16.7%, nitrofurantoin - 14.0%, nitroxoline – 12.7%, ampicillin – 9.4%, aminolycosides – 6.5%, quinolones – 5.1%, chloramphenicol – 2.5%, cephalosporins – 2.5%, amoxicillin/clavulanate – 0.7%, other (oxacillin, metronidazole, erythromicyn, tetracycline) – 4,7% (fig. 1).

The most common antimicrobials prescribed in Ekaterinburg were ampicillin – 25%, nitrofurantoin - 20% and fluoroquinolones - 25,0%; in Rostov-on-Don – ampicillin – 16,7% and chloramphenicol – 8,3%; in S-Petersburg quinolones – 22,6%, nitrofurantoin – 18,9% and nitroxoline - 18,9%; in Smolensk - fluoroquinolones - 31,4% and co-trimoxazole -19,9%. It was found that were used antibiotics with low efficacy in patient with CAP-UTI in consequence of high level of antimicrobial resistance in Russia (ampicillin, co-trimoxazole), archaic (nitroxoline) and potentially toxic drugs (aminolycosides). We found wide use of medications with non-proven clinical efficacy (chloramphenicol, nitroxoline, metronidazole, oxacillin, macrolides, tetracylines), parenteral antibiotics (aminolycosides).

It is well known that the outpatient management requires more compliance from the patient. The low outpatients compliance rate may be a risk factor lies in the increasing of bacterial resistance. In the past, outpatient oral antibiotic therapy has been recognized as a cost-effective, safe and patient-accepted means of managing patients with CAP-UTI who require therapy but otherwise do not need admission to hospital. So we analyzed the percent of different rout of antimicrobials administration for **CAP-UTI treatment.**

• Figure 1. Percent distribution of antimicrobials prescribed to treat CAP-UTI



Physicians prescribe the recommended first-line treatment in Russia for CAP-UTI (fluoroquinolones) for only 25% of all cases.

We found significant differences in the pattern of antibiotic prescription in

• Table 2. Rout of antimicrobial administration for CAP-UTI treatment in different Russian cities

Rout of drug administration	Ekaterinburg	S-Petersburg	Rostov- on-Don	Smolensk	Average among all cites
Oral	85,2	92,5	81,8	84,9	86,1
IM	-	3,8	18,2	15,1	12,37
SC	-	1,9	-	-	1,9
IV	-	1,9	-	-	1,9
Unknown	14,8	-	-	-	14,8

M – intramuscularly, SC – subcutaneous, IV - intravenously

In the patients with CAP-UTI who were receiving antibacterial treatment, outpatient oral prescriptions occurred only in 86.1 % of all prescriptions. Such trend was noticed in all studied cites.

Conclusion

1. A high rate of irrational antibiotic usage in patient with CAP-UTI in Russia was wound. These data indicate that Russian primary care physicians and urologist need to review their knowledge about the treatment of UTI.

2. Unacceptably large number of various antibiotics was used for treatment of CAP-UTI. Most of the "popular" antibiotics are not recommended for empirical therapy by the current guidelines. Further studies are advisable to clarify the reasons for such prescription habits. 3. A high rate of parenteral antibacterials for treatment CAP-UTI in Russia was found.



