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Antimicrobial resistance of respiratory tract pathogens

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In this presentation, an update on current state of antimicrobial resistance of community-acquired pathogens in Russia as compared to those in other European countries based on the results of multicenter studies, organized under the auspices of the Institute of Antimicrobial Chemotherapy (IAC) of Smolensk State Medical Academy (SSMA) and Scientific Center for Monitoring of Antibiotic Resistance of Federal Agency of Health-Care & Social Development (CMAR) will be presented. For all studies, CLSI/NCCLS methodology was used.

A total of 2,419 *S. pneumoniae* from 23 cities of Central, North-Western, Southern, Privolgsk, Ural, Siberian and Far-Eastern regions of Russia were studied from 1999 to 2009. β-Lactams retained high in vitro activity against *S. pneumoniae*: non-susceptibility to penicillin, amoxicillin, amoxicillin/clavulanate and ceftriaxone/cefotaxime was 9.7%, 0.1%, 0%, 1.8% in 1999–2003 and 10.2%, 0.4%, 0.4%, and 1.0% in 2007–2009, respectively. Resistance to macrolides varied from 2.0% to 8.2% in 1999–2003 and from 6.3% to 7.3% in 2007–2009. Proportion of clindamycin-resistant isolates in above mentioned periods was 2.9% and 4.3%. Susceptibility to chloramphenicol varied from 92.3% to 92.9%. Non-susceptibility to tetracycline was high during 1999–2010 (27.3–24.6%). Resistance to co-trimoxazole increased from 31.7% in 1999–2003 to 39.0% in 2007–2009 ($p<0.05$). Vancomycin and respiratory fluoroquinolones retained high activity against *S. pneumoniae*. Proportion of multi-resistant *S. pneumoniae* was 11.8% in 1999–2003 and 14.5% in 2007–2009.

Study of nasopharyngeal pneumococci in 4,135 children under 7 years old from 91 organized communities performed in 19 cities of European and Asian Russia showed the higher resistance in such strains on comparison with clinical isolates with orphanages being 'hot spots' of resistance. These data suggest that namely orphanages could be reservoirs for development and further spread of resistant isolates. This hypothesis also should be confirmed in further studies potentially involving long-term care facilities. Ampicillin resistance in *Haemophilus influenzae* was 4.9% with no resistance to amoxicillin/clavulanate. *Moraxella catarrhalis* seems to be of low epidemiological importance in Russia, being isolated only in rare cases from patients with otitis media and acute exacerbation of chronic bronchitis with all strains being β-lactamase producers and retaining susceptibility to β-lactam/β-lactamase inhibitors.

Biography

Roman S. Kozlov, Professor, Director of the Institute of Antimicrobial Chemotherapy (IAC) of Smolensk State Medical Academy, Director of the Scientific Centre for Monitoring of Antimicrobial Resistance of the Federal Agency for Healthcare & Social Development and President of the Interregional Association for Clinical Microbiology & Antimicrobial Chemotherapy (IACMAC). Professor Kozlov has focused his clinical research on therapeutic agents for infectious diseases and has been involved in numerous clinical trials of antimicrobial agents. Professor Kozlov's main research interests are in the diagnosis, treatment and prophylaxis of serious microbial infections, both in the community and in hospitals, and antimicrobial resistance mechanisms and surveillance. Professor Kozlov's has authored or co-authored more than 250 publications.

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