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Serotype distribution and antibiotic resistance among isolates of streptococcus pneumoniae causing invasive pneumococcal disease in adults in Turkey: 2005-2015

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Background: *Streptococcus pneumoniae* infections are challenging since pneumococci have more than 90 serotypes and emergence of resistant strains has increased. Surveillance systems are essential for effective vaccine strategies and development of treatment protocols. This study aimed to evaluate the serotype distribution and antimicrobial susceptibility of *S. pneumoniae* causing invasive pneumococcal disease in adults (>18 years).

Methods & Materials: *S. pneumoniae* strains were collected from 14 different centers between 2005 and 2015. Pneumococcal serogroup and serotype identification was performed using standard conventional methods. Antibiotic susceptibility testing was performed using E-test and interpreted according to the CLSI 2014 standards.

Results: *S. pneumonia* strains (n = 346) were isolated from blood (60.1%), bronchoalveolar lavage (19.7%), cerebrospinal fluid (11.0%), pleural fluid (6.1%), and other body fluids (3.1%). The most common *S. pneumoniae* serotypes were found as serotype 3 (13.0%), 19F (12.7%), 19A (6.1%), 14 (4.6%), and 6B (4.0%). Vaccine coverage rate was 27.4% for 7-valent pneumococcal conjugate vaccine (PCV-7), 53.5% for PCV-13, and 62.3% for 23-valent pneumococcal polysaccharide vaccine (PPV-23). For oral penicillin V, resistance rate was 21.7% and intermediate resistance rate was 16.8%. For parenteral penicillin, 52.6% was resistant in strains isolated from CSF (meningitis) and 0.6% was resistant and 5.8% was intermediate in strains isolated from other specimens. For cefotaxime, 5.3% was resistant and 18.4% was intermediate in strains isolated from CSF, whereas 1.6% was resistant and 6.5% was intermediate in strains isolated from other specimens. Erythromycin resistance was 28.6%. No resistance was detected to moxifloxacin but intermediate resistance was 0.6%. Serotypes 19A and 19F exhibited higher rates of penicillin and erythromycin resistances. Vaccine coverage rates for non-susceptible (resistant and intermediate) strains are presented in Table 1.

Conclusion: Since serotype distribution and antimicrobial susceptibility of clinical *S. pneumoniae* isolates may change in time naturally also with medical interventions like antibiotic use and vaccination, close monitoring is essential.

Table 1

	Penicillin V (oral)	Penicillin parenteral (non-meningitis)	Penicillin parenteral (meningitis)	Erythromycin
Coverage rates for				
PCV-7	52.0%	60.0%	40.0%	55.6%
PCV-13	68.6%	90.0%	65.0%	76.7%
PPV-23	74.7%	85.0%	75.0%	79.7%

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Antibiotic susceptibility pattern of Brucella melitensis clinical isolates in Hamedan, West of Iran

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Background: Brucellosis is a widespread zoonotic disease with significant economic and major public health problem. Failure of response and relapse of brucellosis have reported with current therapeutic regimens. Considering the high prevalence of brucellosis and recurrence rate of this disease in Iran, widespread and inappropriate use of antibiotics could redound antibiotic resistance among Brucella isolates in the community. The aim of this study was to evaluate the antibiotic susceptibility pattern of Brucella isolates by E-test method in Hamadan, west of Iran.

Methods & Materials: In this study, patients with clinical diagnosis of brucellosis who referred to Infectious Diseases Ward, Sina hospital in Hamadan were studied between April 2013 and July 2014. Blood Specimens were collected for diagnosis of brucellosis by BACTEC blood culture system. Antimicrobial susceptibility patterns of clinical isolates to gentamicin, streptomycin, rifampin, doxycycline, ciprofloxacin, ofloxacin and trimethoprim-sulfamethoxazole were performed by the E-test method. Then the