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SUSCEPTIBILITY PATTERN OF CARBAPENEM-RESISTANT CLINICAL ISOLATES OF *ACINETOBACTER SPP.*

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Acinetobacter spp. is an opportunistic Gram-negative organism which causes infections in seriously ill, hospitalized individuals, mostly surgical patients, those on artificial ventilation, as well as those on long-term antibiotic treatments. The characteristic of clinical isolates of *Acinetobacter spp*. is resistance to a large number of antibiotics. Carbapenems are the approach of choice in the treatment of severe infections, although resistance to these has also been reported in the literature. Our study aims to establish the proportion of carbapenem-resistant clinical isolates of *Acinetobacter spp*. and to examine their susceptibility to other classes of antibiotics.

The study involved 175 isolates of *Acinetobacter spp*. from the material of patients hospitalized at the Clinical Centre Niš in the period from January to September 2016. Patient material consisted of endotracheal aspirates and samples from the patients with soft tissue infections. Testing of susceptibility to antimicrobial drugs was done using disk diffusion methodology on Mueller Hinton agar with gentamicin, amikacin, tobramycin, ciprofloxacin, levofloxacin, cotrimoxazole, imipenem, and meropenem disks (Bio-Rad, France). Susceptibility testing and interpretation of inhibition zones was done abiding by the EUCAST standard guidelines. Isolates resistant to imipenem and meropenem were tested for susceptibility to colistin and tigecycline, establishing with the Etest assay (Liofilchem, Italy) their minimum inhibitory concentrations (MICs). The MIC values for colistin were interpreted based on the EUCAST recommendations, while the MIC values for tigecycline were interpreted according to the recommendations by the Food and Drug Administration (FDA). The isolates resistant to at least three classes of antibiotics were considered multiresistant (MDR).

Of 175 examined clinical isolates of *Acinetobacter spp*., 50 (28.57%) isolates were obtained from endotracheal aspirates, and 125 from the patients with soft tissue infections. Twenty-nine (16.57%) isolates were susceptible to the tested carbapenems. Carbapenem-resistant isolates were mostly susceptible to tobramycin (26.76%), while only 8.9% were susceptible to cotrimoxazole, 1.37% to ciprofoxacin, and 0.69% (1 isolate) to levofloxacin. All tested isolates (137) were sensitive to colistin (MIC ranging from 0.5 μg/ml to 2.0 μg/ml). Of 106 isolates tested to tigecycline, 83 (78.30%) were susceptible (MIC≤2 μg/ml), while 23 isolates showed reduced susceptibility (MIC ranging from 3.0 μg/ml to 6.0 μg/ml). For colistin, MIC_{50} and MIC_{90} were 1.0 μg/ml and 1.5 μg/ml, respectively, and for tigecycline 1.5 μg/ml and 3.0 μg/ml, respectively. All carbapenem-resistant *Acinetobacter spp*. isolates were mutiresistant.

In our study, there were no isolates resistant to colistin, the last-resort antibiotic. It is required only for infections caused by MDR isolates, with continuous susceptibility surveillance. *Acta Medica Medianae 2016;55(4):86-91.*

Key words: *Acinetobacter spp*, carbapenem, resistance