

Penicillin Resistant *Bacillus anthracis* Strains Isolated from Farmers

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Keywords: anthrax, antibiotics, susceptibility

SUMMARY

Considering the severity of anthrax infection, an alternative therapy for the classical penicillins should be provided when taking into account the recently isolated *B. anthracis* strains resistant to penicillins.

There were evaluated the aspects of antibiotic susceptibility of *B. anthracis* strains in two patients (farmers) by Kirby-Bauer method, using Oxoid disks: penicillin G, ampicillin, oxacillin, piperacillin, imipenem, ceftazidime, ceftriaxone, cefuroxime, chloramphenicol, trimethoprim/sulphamethoxazole, erythromycin, clarithromycin, tetracycline, doxycycline, rifampicin, gentamycin, ofloxacin, norfloxacin, ciprofloxacin, metronidazole. Subsequently, there were determined the minimum inhibitory concentrations (MICs) of the respective strains, which were resistant to penicillin G, by “in agar” antibiotic dilution method (using serial dilutions, from 16µg/ml to 0,0075µg/ml, prepared in saline isotonic solution and incorporated in Mueller-Hinton agar). The antibiosusceptibility aspects were read after 18-20 hrs incubation at 35-37°C.

The penicillin-resistant strains exhibited similar patterns of antibioresistance: to penicillin G, ampicillin, piperacillin and imipenem. Both of *B. anthracis* strains proved to be resistant to the IIIrd generation cephalosporins, as well as to trimethoprim / sulphamethoxazole. The strains were sensitive to chloramphenicol, gentamycin, tetracyclines and fluoroquinolones. The MIC levels of penicillin G proved to be for one of the penicillin resistant strains 0.5 µg/ml, and for the second strain (isolated from a fatal case) 4 µg/ml, whereas for the standard strain *B. anthracis* this MIC level was only <0.015 µg/ml.

Although the most *B. anthracis* strains remain still sensitive to penicillin, however, fluoroquinolones remain the antibiotics of choice in the treatment of anthrax infection, if administered a correct therapy.