

Analysis of the etiological structure and antibiotic resistance of infectious agents isolated from hospital patients

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Background:

The inappropriate use of antibiotics may lead to emergence of antibiotic-resistant bacterial strains and is a serious global health problem. The aim of our study was to examine the etiological structure of several bacterial infections and their resistance to antibiotics.

Methods:

We analyzed samples from 51 hospital inpatients at Bonada Hospital with isolated bacterial pathogens, using an automated microbiological analyzer Vitek2 and mass spectrometry microbiological identification system Vitek MS. The sensitivity of bacteria to antibiotics was studied by the disk diffusion method.

Results:

Among 51 patients, we identified that 13 (25.5%) patients had *Escherichia coli*, 12 (23.5%) had *Klebsiella pneumoniae*, eight (15.7%) patients had *Pseudomonas aeruginosa*, four (7.8%) had *Acinetobacter baumannii*, four (7.8%) had *Enterococcus faecalis*, three (5.9%) had *Staphylococcus aureus*, three (5.9%) had *Citrobacter freundii*, two (3.9%) had *Enterobacter cloacae*, one (1.9%) had *Klebsiella oxitoca* and one (1.9%) had *Burkholderia vietnamiensis*. Two types of enterobacteria, *Klebsiella pneumoniae* and *Escherichia coli* were surprisingly resistant to fluoroquinolones (ciprofloxacin and norfloxacin) while susceptible to amikacin and gentamicin drugs of the second and third generations of aminoglycosides. Meropenem, which belongs to the class of

carbapenems, had a high bactericidal effect on three enterobacteria (*Klebsiella pneumoniae*, *Escherichia coli*, *Citrobacter freundii*) and two non-fermenting bacteria (*Acinetobacter baumannii*, *Pseudomonas aeruginosa*). The bactericidal effect of colistin on all gram-negative bacteria was found.

Conclusion:

Both examined gram-negative and gram-positive bacteria had strong hypersensitivity to Trimethoprim-Sulfamethoxazole. Considering that amoxicillin/clavulanic acid is often a drug of choice to treat the upper respiratory tract infections, resistance to *Klebsiella pneumoniae* and *Staphylococcus aureus* to amoxicillin/clavulanic acid found in our study is a matter of concern and suggests that further research is needed. The issue of varying degrees of susceptibility of bacteria to antibiotics highlights the need for regular monitoring of the etiological spectrum of pathogens and their susceptibility to antibiotics.

Biography

Mahira Guliyeva is experienced Microbiologist with a demonstrated history of working in the hospital & health care industry. Now she is working in JCI certificated Liv Bona Dea International Hospital in Baku. She is a strong research professional graduated from Medical University Azerbaijan. She knows English, Russian, Turkish fluently, German B1 level. She is member of Azerbaijan Society of Infection Diseases and Clinic Microbiology.