

MODERN ASPECTS OF MICROBIAL RESISTANCE TO ANTIBIOTIC THERAPY

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With the discovery of antibiotics, which have selectively actions on microorganisms, it seemed that an era of final victory over infectious diseases has begun for humanity. And soon the phenomenon of resistance was discovered.

Translated from the Latin «resistentia»— means “resistance, stability”. Resistance — is the ability of a microorganism to carry much higher concentration of the drug rather than the other microorganisms (bacterias) of the same strain. According to the study of American Group, only for the period 2009-2011, the number of metillin-resistant *Staphylococcus aureus* in the nasopharynx of children increased from 1% to 10%. One of the reasons for the increase of resistance in the world is the use of antibiotics for feed-staff of farm animals.

Resistance of microorganisms to antibiotics is caused by several factors. Acquired resistance - under the influence of the antibiotic on the bulk of these microorganisms die and resistant cells continue to multiply. Resistance of these organisms is inherited, giving rise to a new antibiotic resistance. That is why doctors strongly warn patients to keep on the started antibiotics course to the end, otherwise, survived microorganisms can become stirpes of the resistant strain. Also very important factor is that, that the microorganisms which are resistant to one antibiotic simultaneously can be resistant to the other antibiotics too, because of the similarity of action mechanism. It is called «cross-resistance». For instance, bacterias that are resistant to tetracycline simultaneously acquire resistance to chlortetracycline, oxytetracycline.

If we talk about the genetic basis of resistance, then it is based on the presence of outer factors of chromosome, resistant to drugs like - plasmids and transposable elements. The rate of development of resistance and the restraint are linked with the species and even strain's agent (or pathogen). Frequently, *Staphylococcus*, *Escherichia*, *Salmonella*, and *Pseudomonas aeruginosa* show resistance. Nowadays, when antibiotics are widely used, resistant microorganisms to the antibiotic drugs are encountered very often. We may conclude that the precipitously introduction of new antibiotics requires us quick regulation and improvement of knowledge about antibiotics and antibiotic resistance.

Knowledge on this important issue will help us to save many lives and prevent the spread of resistant organisms.