Amphenicols

Amphenicols are among the ATBs interfering with the process of **bacterial proteosynthesis** , together with macrolides , lincosamides , streptogramins, oxazolidinones , tetracyclines and aminoglycosides . However, each of these ATB intervenes in the process of proteosynthesis at a different place and by a different mechanism. De facto, the only practically used ATB from the group of amphenicols is **chloramphenicol** . It is generally used very little due to serious side effects.

Mechanism of action and spectrum

These are bacteriostatic, **broad-spectrum** ATB effective G+, G-, aerobic and anaerobic bacteria. H. infuenzae and N. meningitis are highly sensitive to chloramphenicol, so in this case ATB has up to bactericidal effects. It acts through reversible binding to the 50S subunit of the bacterial ribosome. The mechanism of bacterial resistance is mainly CMP acetyltransferase.

For adverse effects, deviation from use **is not the drug of choice** . It can be used as an alternative in the therapy of severe (mainly anaerobic) infections, meningitis, typhoid or salmonella sepsis. It is also an alternative to tetracyclines in rickettsial infections.

Pharmacokinetics

After oral administration, bioavailability is good, ATB also has good tissue penetration. In the CNS, it reaches the same concentrations as in plasma. **Metabolism takes place in the liver** , so dose adjustment is necessary in case of liver insufficiency. It inhibits the metabolism of warfarin and phenytoin . Elimination is via urine.

Adverse effects

They are very significant with chloramphenicol and include mainly **hematopoietic disorders** (we distinguish dose-dependent, which are reversible, and dose-independent, e.g. irreversible aplastic anemia), **Gray baby syndrome** (newborns, especially premature babies have immature liver and kidneys, so there is an accumulation chloramphenicol, which competes with oxygen for hemoglobin → cyanosis), risk of **hemolytic anemia** in persons with Glc-6-P dehydrogenase deficiency (no reduction of NADP → erythrocytes lack NADPH → susceptibility to oxidative stress). IronSee the chlamphenicol page for more detailed information

Links

Použitá literatura

- JAN, Švihovec and Kolektiv KOLEKTIV. *Pharmacology.* - issue. Grada Publishing as, 2018. 1008 pp. ISBN 9788024755588 .
- JIŘINA, Martínková and Kolektiv KOLEKTIV. *Pharmacology: for medical students, 2nd, completely revised and supplemented edition.* - issue. Grada Publishing as, 2018. 520 pp. ISBN 9788024741574 .
- Study materials from the teaching of pharmacology at the Institute of Pharmacology of the 1st Faculty of Medicine, UK and VFN