Glycopeptides

Glycopeptides are highly effective **bactericidal** antibiotics.

Mechanism of action

They inhibit bacterial cell wall synthesis.

Antimicrobial spectrum

They are effective only against G +, especially methicillin resistant staphylococci (oxacilin), enterococci, *Streptococcus pneumoniae*, *Streptococcus pyogenes*, *Clostridium difficile*.

The two basic antibiotics are **vancomycin** a **teicoplanin**.

Vancomycin

Pharmacokinetics

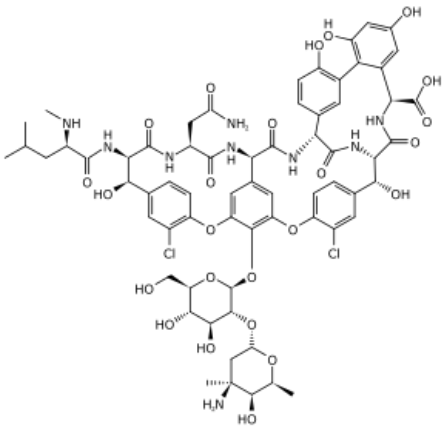
It is not absorbed from the digestive tract - when enteral, it only acts locally, so it is used to treat **enterocolitis**. It is administered intravenously for systemic effect. It is eliminated by renal excretion in a metabolically unchanged form. Impaired renal excretory function requires dose reduction. It can also accumulate in case of liver insufficiency. The therapeutic window is narrow, so therapeutic level monitoring is appropriate.

Pharmacodynamics

The effect of vancomycin is independent of concentration.

Indication

Vancomycin is used to treat infections caused by sensitive gram-positive microorganisms and anaerobes - such as peritonitis, sepsis , endocarditis , and to treat other serious diseases. It is given orally in pseudomembranous colitis . Almost all staphylococcal strains are still susceptible to vancomycin, making this antibiotic the drug of choice for methicillin-resistant staphylococcal infections (MRSA). The use of vancomycin should be reserved for cases where penicillins or cephalosporins cannot be administered, or for patients who have not responded to these antibiotics or for whom there is another specific indication.



Vancomycin

Side effects and toxicity

Phlebitis is formed by local irritation, especially after paravenous application. Ototoxicity and nephrotoxicity are directly dependent on plasma concentrations. Therefore, **monitoring of plasma levels** is recommended. *„Red man syndrome“*, (flush, itching, hypotension , apparently unsensitized release of histamine from mast cells) may occur with rapid administration . Therefore, vancomycin is also administered by infusion over at least 1 hour.

Contraindication

Vancomycin must not be used in allergies to glycopeptide antibiotics. It must not be used i.m. It should be used with caution in hearing loss, renal function and pregnancy. Ototoxicity and nephrotoxicity are increased by concomitant administration of other such toxic substances (ex. aminoglycosides).

Teicoplanin

Teicoplanin is a glycopeptide with a vancomycin-like spectrum. It does not have cross-resistance, is very well tolerated and is not toxic. It is intended for parenteral administration. The half-life is longer than vancomycin.

Links

Related articles

- Antibiotics

Resources

- MARTÍNKOVÁ, J, S MIČUDA a J CERMANOVÁ. *Antibiotika* [online]. [cit. 2010-07-14]. <https://www.lfhk.cuni.cz/farmakol/predn/bak/kapitoly/atb-bak.doc/>.

References

- LINCOVÁ, Dagmar a Hassan FARGHALI, et al. *Základní a aplikovaná farmakologie.* 2. vydání. Praha : Galén, 2007. ISBN 978-80-7262-373-0.