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Gold Book

Datasheet N°2

COMBINATION THERAPIES AND INCOMPATIBILITIES FOR INJECTABLE ANTI-INFECTIVES

PRACTICAL USE OF ANTI-INFECTIVE COMBINATIONS

Gold standards for anti-infective combinations

Some rules about anti-infective combinations (Jawetz and Gunnisson's rules) are established and offer guidelines to the practitioner to optimize security and efficacy when several anti-infectives are chosen to be administered simultaneously for treatment.

- The combination of 2 bactericidal anti-infectives usually leads to a synergistic effect i.e. the final antimicrobial effect will be greater than the additional effect of the separate anti-infectives
- The combination of 2 bacteriostatic anti-infectives usually leads to an additional effect i. e. the final antimicrobial effect will be the additional effect of the separate anti-infectives
- The combination of a bactericidal and a bacteriostatic anti-infective : the effect is variable depending on the combined anti-infectives and may even be antagonistic. In that case, the final antimicrobial effect of the dual administration is less effective than the most efficient anti-infective
- Sometimes the combination may even be toxic (see table below).

These general rules can include noticeable exceptions, as for example sulfonamides + trimethoprim (both bacteriostatic anti-infectives) which lead to a very effective synergy when associated.

Family per family anti-infective combinations and incompatibilities

anti-infectives /effect of combination	SYNERGY	ADDITIONAL	ANTAGONISTIC	TOXIC
Aminosides	+ penicillins + quinolones	+ macrolides		+ sulfonamides + polypeptids
Penicillins	+ aminosides + quinolones		+ macrolides + tetracyclins	
Phenicols		+ polypeptids + tetracyclins	+ beta lactams* + macrolides	
Tetracyclins		+ polypeptids + macrolides	+ beta lactams*	
Macrolides		+ polypeptids + aminosides + tetracyclins	+ beta lactams* + phenicols	
Polypeptids				+ aminosides + sulfonamides
Quinolones	+ beta lactams* + aminosides			
Sulfonamides	+ trimethoprim			+ aminosides + polypeptids

*beta lactams include penicillins and cephalosporins

REFERENCES: TOUTAIN P. L. - Online courses in antibiotherapy, physiologie.envt.fr, 2012