Continuous infusion of beta-lactam antibiotics in the critically ill: unresolved pharmacokinetic and pharmacodynamic issues

Positioning of the thesis

By 2050, approximately 10 million patients per year are likely to die from infections with antimicrobial resistant pathogens, exceeding the total number of deaths attributable to cancer each year. New drugs that are able to combat antimicrobial resistant infections are very scarce and our current armamentarium of antimicrobial drugs should be seen as a highly valuable, non-renewable resource. Therefore, the judicious use of antimicrobial drugs is paramount to improve clinical outcome and avoid future deaths due to antimicrobial resistant infections.

An important instrument in our toolbox to optimize antimicrobial therapy is the discipline of drug pharmacokinetics (PK) and pharmacodynamics (PD). PK/PD is the science relating antimicrobial drug concentrations to, for example, clinical cure or the emergence of antimicrobial resistance.

In this thesis, the focus is on how PK/PD principles can help optimize the use of beta-lactam antibiotics, amongst the antimicrobial drugs most commonly prescribed in the Intensive Care Unit.
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