

E081

2-hour Educational Workshop

Basic concepts of pharmacokinetics and pharmacodynamics

Drug level monitoring and dosing recommendations - facts and myths

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Therapeutic drug level monitoring (TDM) is an established method to find the most appropriate dosing regimen of a therapeutic agent for an individual patient. In this approach a pharmacokinetic target concentration is defined that is thought to have the highest probability of therapeutic success. This target can be a drug concentration at a certain time (peak, trough) or a time-integrated value (AUC). In anti-infective therapy, this target can be an absolute concentration or it can be normalized based on susceptibility (e.g. AUC/MIC). Then, there are usually two steps in performing TDM. For a new patient, all available relevant patient information is used together with population average pharmacokinetic parameters to determine an individualized dosing regimen. This regimen is a best estimate to achieve the target based on the available information and will be administered to the patient. In the second step, serum concentrations will then be measured at appropriate times to fine-tune the dosing regimens if the measured concentrations deviate from the expected target levels. There is a common misunderstanding that achieving the recommended target serum levels will guarantee therapeutic success. However, many assumptions are made in this approach that have to be in place for it to be successful. These will be reviewed and examples will be given on some of the facts and myths of TDM. There are drug-specific guidelines and recommendations available. This presentation will focus on aminoglycosides, vancomycin and voriconazole drug level monitoring and will discuss the drug-specific issues that need to be considered when performing TDM services for these agents.