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THERAPEUTIC DRUG MONITORING AND PHARMACOGENETIC TESTS IN PHARMACOVIGILANCE - WHEN AND WHAT?

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More than 80% of all adverse drug reactions are Type A reactions and dependent on drug concentrations. Therapeutic Drug Monitoring (TDM), Drug Interaction checking programs and pharmacogenetic tests are valuable instruments in elucidating or preventing Type A reactions. It stands for Quality Assurance in clinical practice. The TDMplus algorithm (Jaquenoud Sirot E et al 2006) is helpful in clinical practice and prevents unnecessary testing. This decision tree leads in several "stop/go" steps from the clinical situation of inefficacy or adverse reaction to measuring and interpreting plasma levels, checking for pharmacokinetic interactions and finally, if indicated, to pharmacogenetic tests with genotyping and/or phenotyping. Genetic results are noted on a personal "pharmacogenetic card" for the patient's future treatments.

The interplay of genetics, drug interactions, life style and other personal vulnerabilities like comorbidity make prediction of drug response very complex. The use of TDMplus has proven useful guiding the clinicians in difficult clinical situations and helping elucidating the causality of adverse drug reactions. Its practical benefit has been shown with pharmacovigilance cases from the AMSP program (Arzneimittelsicherheit in der Psychiatrie = Drug Safety in Psychiatry).

Reference: Jaquenoud Sirot E, van der Velden JW, Rentsch K, Eap CB, Baumann P. Therapeutic drug monitoring and pharmacogenetic tests as tools in pharmacovigilance. *Drug Saf* 2006; 29(9):735-768.