Indications For TDM

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1. To monitor compliance with the therapy
2. To individualize treatment
3. To diagnose under treatment
   - Where there is poor response to the administered dose. Eg: Aminoglycosides
4. To monitor drug interactions
   Eg: Rifampicin + Phenytoin
5. When there is a steep dose-response curve for which a small increase in dose can result in a marked increase in desired or undesired response.
   Eg: theophylline
6. When there is toxicity coupled with a poorly defined or difficult to detect clinical end points or where signs of over dosage or under dosage are difficult to distinguish.
   Eg: Anti-convulsants, cyclosporine.

7. A narrow therapeutic range

Eg: Digoxin

8. Concentration related therapeutic and adverse effects

9. Marked inter-individual pharmacokinetic variability which increases the variability in the relationship between dose and PDC.

Eg: Phenobarbital

10. For drugs that exhibit saturation kinetics which may lead to rapid accumulation of drugs to toxic concentrations

Eg: Phenytoin

11. For drugs that are expected to give long time prophylaxis to ensure that the dosage regimen is likely to provide effective prophylaxis.

Eg: Phenytoin in epilepsy

12. For drugs which exhibit poor and erratic

absorption.

As a rule, the larger the variability in the absorption of drug the greater is the need for monitoring it.

13. In patients receiving multiple drug therapy with a potential risk of drug interaction.

14. When there is no predictable dose response relationship i.e. the dose of drug that produces sub-therapeutic effect in one patient and therapeutic/toxic reaction in another.

15. Renal disease

16. Therapeutic failure

17. For diagnosis of suspected toxicity and determining drug abuse

TDM is not indicated in the following cases:

1. For drugs that have broad therapeutic index

2. For drugs whose response can be monitored

by clinical signs.

Examples:

- Measurement of BP for anti-hypertensives
- Blood coagulation time with anti-coagulants
- Decrease in pain and inflammation with analgesics / NSAIDs

3 In case of drugs where the relationship between plasma concentration and clinical response is not firmly established.