

CURRENT RESEARCH TOPICS IN PHARMACY:

Therapeutic Drug Monitoring

March 29th, 2023 13.00 PM ISTANBUL



FOR REGISTRATION:

First Session- Moderator: Esra TATAR 13.00-14.30 PM

Welcome- Prof. Mesut Sancar
Marmara University, Istanbul, Türkiye

Analytical techniques used for therapeutic drug monitoring – Dr.Mohd Younis Rather
Government Medical College Srinagar, Srinagar, India

Combination of therapeutic drug monitoring and genotyping in pharmacotherapy- Prof.Halit Sinan Szen
Ankara University, Ankara Trkiye

Therapeutic drug monitoring of antipsychotics – Assist.Prof.Ana V. Pejic
University of Kragujevac, Kragujevac, Serbia

Second Session – Moderator: Betl OKUYAN 15:00-16.30 PM

How to avoid perils and pitfalls when reading epidemiological studies– Dr.Pamela Xaverius
University of Health Science and Pharmacy in St.Louis, USA

Current themes in immunosuppressive therapies: TDM research and practice -Assist.Prof.Abdikarim Abdi
Yeditepe University, Istanbul, Trkiye

TDM of antimicrobials : Role of clinical pharmacist- Assist. Prof. Emre Kara
Hacettepe University, Ankara, Trkiye

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COMBINATION OF THERAPEUTIC DRUG MONITORING AND GENOTYPING IN PHARMACOTHERAPY

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Development of adverse drug reactions (ADRs) and inefficient or excessive response to medications are still important problems during pharmacotherapy. Therapeutic Drug Monitoring (TDM) is one of the valuable tools to overcome medication related issues in either clinical or outpatients [1]. TDM is quantification of the medications and their pharmacologically active metabolites in biological tissues, mostly blood plasma or serum. The stages of TDM consists of several compartments including chemical analysis, pharmacokinetics and pharmacodynamics. There is no need to perform TDM for all medications. The established necessities for conducting TDM are narrow therapeutic index/range of medication, therapeutic failure, medication toxicity, unpredictable relationship between dose and clinical outcome, large variation in metabolism of medications, and detect drug abuse.

Since TDM assay results have a great impact on medication treatment, accuracy of TDM report is vital. On the other hand, it should be considered that some factors may have change blood medication levels. These are age, gender, body weight, diseases, pregnancy, lactation medication interactions, pharmacogenetics and blood sampling time.

Various analytical methods have been used for TDM service and investigations. These are mainly chromatographic (GC-MS, HPLC, LC-MS) and immuno binding assays methods (Fluorescence Polarization Immuno Assay-FPIA, Enzyme Immunoassay-EMIT, enzyme-linked Immunosorbent assay and Chemiluminescence). Although immunoassays are more economic and faster than chromatographic methods, their sensitivity, specificity, and accuracy concerning the target medication is lower than chromatographic techniques.

Enormous technical developments in molecular biology methods and understanding of our genome function have been given prominent contribution to medication treatment especially in last two decades. Number of actionable pharmacogenetics biomarkers has been increasing for considerable number of medications [2]. Thus, combination of genotyping for particular medications together with TDM has a great potential to achieve successful treatment with minimising adverse drug reactions in pharmacotherapy.

Keywords: Therapeutic Drug Monitoring (TDM); genotyping; pharmacotherapy

REFERENCES

- [1] Gross AS. Best practice in therapeutic drug monitoring. *Br J Clin Pharmacol*. 1998 46(2):95-99. [\[CrossRef\]](#)
- [2] Yamazaki S. A retrospective analysis of actionable pharmacogenetic/genomic biomarker language in FDA labels. *Clin Transl Sci*. 2021 1(4):1412-1422. [\[CrossRef\]](#)