Therapeutic Drug Monitoring of Antiseizure Medications: Current Status and Perspectives

Antiseizure medications (ASMs) are the mainstay of the treatment of epilepsy. There are currently 27 marketed ASMs, most of which are subject to therapeutic drug monitoring (TDM). The concept of TDM for ASMs has changed profoundly over the years, moving from the simple measurement of drug concentration in biological fluids and development of new analytical techniques in the early sixties to a fundamental role in the individualized management of therapy. The wide pharmacokinetic variability of ASMs results in extensive variability in serum drug concentrations among patients receiving the same dose. Moreover, serum ASM concentrations can vary over time within individuals due to drug interactions, physiological changes in drug clearance, the impact of comorbidities, and changes in adherence. TDM can be highly beneficial in guiding dose adjustments in these situations. TDM is particularly valuable in clinical settings associated with prominent inter- and intra-individual pharmacokinetic variability, such as pediatric age, pregnancy, the elderly and patients on polytherapy. The aim of this symposium is to provide an overview of current evidence on the rationale, indications and implementation of TDM of ASMs in clinical practice.

Scientific Programme (Official language: English)

11.00 Greetings
Emilio Perucca
University of Pavia and IRCCS Mondino Foundation, Pavia (Italy)

Emilio Russo
Science of Health Department, School of Medicine, University "Magna Graecia" of Catanzaro (Italy)

11.10 Therapeutic Drug Monitoring (TDM) of Antiseizure Medications: Usefulness and Limitations
Valentina Franco
University of Pavia and IRCCS Mondino Foundation, Pavia (Italy)

11.45 Which Antiseizure Medications Should Be Preferentially Monitored?
Cecilie Johannessen Landmark
Faculty of Health Sciences, Oslo Metropolitan University, Oslo and National Center for Epilepsy and Department of Pharmacology, Oslo University Hospital (Norway)

12.20 Optimal Application of TDM in the Management of Epilepsy: Gender Issues
Torbjörn Tomson
Department of Clinical Neuroscience, Karolinska Institute, Stockholm (Sweden)

12.55 Discussion

13.10 Concluding Remarks