Centre de Neurosciences Psychiatriques

CNP SEMINAR

ANNOUNCEMENT

Friday October 13th 2023, 11:00 – 12:00

Use of brain imaging data to improve prescriptions of psychotropic drugs - Examples of ketamine in depression and antipsychotics in schizophrenia

By **: Dr Xenia Marlene Hart**

Central Institute of Mental Health, Department of Molecular Neuroimaging, Medical Faculty Mannheim, University of Heidelberg, Mannheim, Germany & Department of Neuropsychiatry, Keio University School of Medicine, Tokyo, Japan

Summary :
The use of molecular imaging, particularly PET and SPECT, has significantly transformed the treatment of schizophrenia with antipsychotic drugs since the late 1980s. It has offered insights into the links between drug target engagement, clinical effects, and side effects. A therapeutic window for receptor occupancy is established for antipsychotics, yet there is a divergence of opinions regarding the importance of blood levels, with many downplaying their significance. As a result, the role of therapeutic drug monitoring (TDM) as a personalized therapy tool is often underrated. Since molecular imaging of antipsychotics has focused almost entirely on D2-like dopamine receptors and their potential to control positive symptoms, negative symptoms and cognitive deficits are hardly or not at all investigated. Alternative methods have been introduced, i.e. to investigate the correlation between approximated receptor occupancies from blood levels and cognitive measures. Within the domain of antidepressants, and specifically regarding ketamine's efficacy in depression treatment, there is limited comprehension of the association between plasma concentrations and target engagement. The measurement of AMPA receptors in the human brain has added a new level of comprehension regarding ketamine's antidepressant effects. To ensure precise prescription of psychotropic drugs, it is vital to have a nuanced understanding of how molecular and clinical effects interact. Clinician scientists are assigned with the task of integrating these indispensable pharmacological insights into practice, thereby ensuring a rational and effective approach to the treatment of mental health disorders, signaling a new era of personalized drug therapy mechanisms that promote neuronal plasticity not only under pathological conditions, but also in the healthy aging brain.

Invited by Chin.Eap@chuv.ch

Publications:
- **Hart XM**, Hiemke C, Eichentopf L, Lense XM, Clement HW, Conca A, Faltraco F, Florio V, Gründer J, Havemann-Reinecke U, Molden E, Paulzen M, Schoretsanitis G, Riemer TG, Gründer G (2022). "Therapeutic Reference Range for Aripiprazole Revised: a Systematic Review and Metaanalysis." Psychopharmacology, 239(11): p. 3377-3391.
- **Hart XM**, Schmitz CN, Gründer G. (2022). "Molecular Imaging of Dopamine Partial Agonists in Humans: Implications for Clinical Practice." Front Psychiatry 13: 832209.
- Wesner K, Hiemke C, Bergemann N, Egberts K, Fekete S, Gerlach M, Havemann-Reinecke U, Lense XM, Riemer TG, Schoretsanitis G, Uhr M, Zernig G, Gründer G, **Hart XM** (2022). "New therapeutic reference range for olanzapine: A systematic review and metaanalysis." JoCP.

Salle de séminaire, 1er étage du Centre des Neurosciences Psychiatriques (CNP)
Site de Cery, CH-1008 Prilly-Lausanne