

SYMPOSIUM

Exploring the interrelated aspects of neuropsychological, psychoaffective and medical aspects in the clinical care of older adults: bridging the gap between the clinical and the fundamental research by a multi-determined approach

Chair: Pr. Isabelle Simoes Loureiro (Department of Cognitive Psychology and Neuropsychology, University of Mons)

In this symposium, we will explore several interrelated neuropsychological, psychological and medical aspects to better understand cognitive and behavioral symptoms of psychogeriatric patients. To start with, Delphine De Ro, a Neuropsychologist in a psychogeriatric diagnostic unit of the Van Gogh Hospital, will present the clinical reality of hospitalized older adults. She will explain the difficulties of differential diagnosis as well as the risk of proposing inappropriate treatments, and how the neuropsychological approach is constantly trying to contribute, in accordance with the other clinical disciplines, to refine itself to contribute to a better diagnosis. Then, François-Xavier Sibille, Medical doctor, and Chief assistant at the Clinique Mont-Godinne, as well as researcher at the Louvain Drug Research Institute, will present his work on the relationship between multi-drug therapy and consequential cognitive, emotional, and behavioural disorders. He will propose a particular focus on the medications prescribed in the context of central nervous system management. We will then turn to more fundamental research, with Auriane Gros, senior lecturer at the CoBteK Laboratory of the University of Côte d'Azur, who will present original work on gesture analysis as a tool for assessing social apathy. Finally, Sandra Invernizzi (co-author Pr. Laurent Lefebvre and Pr. Isabelle Simoes Loureiro from the Department of Cognitive Psychology and Neuropsychology at the University of Mons) will present fundamental research on the influence of depression in aging on the cognitive processes involved in the management of multiple meaning contexts. Highly determined by executive-semantic, these processes are indeed expected to be impaired because of the dysexecutive nature of late-life depression.

Talk 1: Orientation through the neuropsychological diagnostic in the psychogeriatric department (Delphine De Ro, Neuropsychologist (Hospital Van Gogh))

The role of the neuropsychologist in a psychogeriatric unit is of main importance for the best orientation of the patients towards the, sometimes complicated, differential diagnostic. Many challenges are encountered in this department. The clinical pictures observed, the diversity of the present and pre-existing pathologies, as well as all the medical-psycho-social specificities of an elderly population generate the need for a multidisciplinary team. However, even with the multivariate approach available in psychogeriatric units, questions often remain unanswered and, as a consequence, patients are sometimes misdirected to the unfitted care. The procedure applied by the neuropsychologist to better contribute to a more-grained diagnostic is, firstly, to consider the precise medical, neurological, and psychiatric history. Secondly, pieces of information about the presence of multiple aetiologies must be known as they make it difficult to formulate a reliable prognostic hypothesis. In this presentation, we approach the fundamental question of differential diagnosis between neuroevolutionary syndrome, psychiatric syndrome, and acquired neurological syndrome, and the possibility to perform it in the daily routine of the hospital, with all the issues that remain unclear and in need of new founding allowing to address them.

Talk 2: Medications, and Cognitive, behavioral, and psychological symptoms in older adults

(François-Xavier Sibille, MD, Chief assistant Clinique Mont-Godinne, Louvain Drug Research Institute)

There are close links between medications and cognitive, behavioural, or psychological disorders. First, several medication classes have been developed to treat or alleviate symptoms from cognitive or psychological disorders: benzodiazepine receptor agonists (BZRA), antiepileptics, antidepressants, antipsychotics... Moreover, medications may induce (symptoms of) cognitive or psychological disorders. For instance, benzodiazepines may induce daytime sleepiness that could be misconceived as cognitive apathy. Maybe more than other medications, prescription of the central nervous system (CNS) acting medications need to consider non-CNS acting drugs and non-cognitive or psychological disorders. We must pay attention to the effective benefit of these medications especially regarding treatment duration, drug-drug interactions, and drug-disease interactions. For instance, anticholinesterase drugs may be involved in bradycardia and ill-tolerated in patients living with heart failure. On the other hand, other drug classes may have effects on CNS, for instance through anticholinergic effects. Older adults are especially at risk of adverse drug events because of the pharmacodynamic and pharmacokinetic changes related to aging. They are also more exposed to multimorbidity and polypharmacy. Diagnosis and treatment may also be more challenging in older adults. Delirium is a useful example of the imbrication of cognitive, behavioral, and psychological symptoms and of the implication of medications, more often part of the explanation than the solution.

Talk 3: From Sensoriality to Gesture: The right tool for the best emotional assessment? Focus on social apathy.

(Auriane Gros, University of Côte d'Azur, CoBteK Laboratory), Senior Lecturer in Neuroscience, Speech-Language Pathologist, and Educational Director of the Speech-Language Pathology Department of Nice. UFR Médecine de Nice

The three main components of emotions, e.g. emotional, behavioral, and cognitive, can be assessed with different specific tools relying on a wide variety of functions going from sensoriality to the quality of the gesture. In the same way that the smell function can be tapped to assess mood disorders or that the recognition of visual interaction is evaluated in schizophrenia, the social component of emotion will be studied through the analysis of gesture in apathy. A new tool for the evaluation of social apathy named SensRing will be presented. Based on a microcontroller, the SensRing allows the acquisition and storage of reaction time and movement speed data. Thus, within the framework of short tasks (10 minutes), it measures social apathy in a precise and dynamic way by subjecting the patient to two different conditions of gesture processing: or an individual condition in which the participant must pick up a can and put it inside a cup placed on the table, or a social condition in which the participant must grab the can and pass it to his/her partner. Preliminary results show a difference in gesture planification during the social and individual conditions in the controls but not in the patients with social apathy. These results, beyond their interest in the diagnosis, lead us to wonder about the links between sensory and motor skills in emotional disorders.

Talk 4: When faced with ambiguous concepts, depression in aging does affect semantic cognition through impairment of the subprocess of selection-inhibition but not through control.

Sandra Invernizzi¹, Alice Bodart¹, Laurent Lefebvre², Isabelle Simoes Loureiro² (University of MONS, Department of Cognitive Psychology and Neuropsychology ; ¹Ph.D. Student; ²Professor)

Manipulation of ambiguous meaning requires executive processes including (1) "selection" of context-coherent meaning, by inhibition of irrelevant competing information, and (2) "control" allowing a goal-directed retrieval through the semantic store when less-salient information is needed. Aging does slow down (1) the selection-inhibition process, but not (2) control (Hoffman, 2018), but what is to be expected when aging is combined with depressive symptoms? 73 individuals (age: 66.5 ± 3.5) were

assessed with a depression scale and completed two tasks of semantic management of ambiguous concepts; a primed lexical decision task (PLD) based on ambiguous words and a verbal association of words sharing different types of meaning (VA). In the PLD, the (1) selection-inhibition was enhanced by associating an ambiguous prime (e.g. BANK, meaning 'building' or 'riverside') to a target corresponding to its weak meaning (e.g. riverside). In the VA (2) control was manipulated by the condition of association, varying among low control (associate an ambiguous word to a synonym of its dominant meaning [e.g. bank - building]) and high control (same request with subordinated meaning synonym [e.g. bank - riverside] or association to a concept sharing a same feature). Our results show an interaction effect ($p < .001$) between depressive symptoms and the priming condition involving high selection-inhibition request in the PLD, but not with the condition enhancing control in the VA. Our results indicate that depressive symptoms in aging do increment the difficulty in semantic cognition in ambiguous contexts through the executive process of selection-inhibition but not because of the control process.