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FACULTEIT GENEESKUNDE EN FARMACIE

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UITNODIGING

Voor de openbare verdediging van het doctoraatsproefschrift van

Chris BAEKEN

donderdag 11 juni 2009

U wordt vriendelijk uitgenodigd op de openbare verdediging van het proefschrift van

Chris BAEKEN

'The Neurobiological Impact of High Frequency Repetitive Transcranial Magnetic Stimulation on the Underlying Neurocircuitry of Depressed Mood'

Op **donderdag 11 juni 2009** om **17 uur** in auditorium **P. Brouwer** van de Faculteit Geneeskunde & Farmacie, Laarbeeklaan 103, 1090 Brussel

Situering van het proefschrift

Repetitive Transcranial Magnetic Stimulation (rTMS) is safely used to treat psychiatric illnesses, especially major depression. By using TMS 'off-line' paradigms, the main purpose of this thesis was to evaluate the neurobiological effects of fixed high frequency (HF)-rTMS parameters on mood changes in healthy subjects, as well as in unipolar TRD patients of the melancholic subtype. The absence of HF-rTMS effects on the HPA-axis in non-depressed subjects, in contrast to the effects found in depressed individuals could imply that the neurobiological influences of HF-rTMS are specific for a given pathophysiological condition. The 'hypersensitive' HPA-axis, only observed in HF-rTMS non-responders, indicates that only those depressed patients with some kind of 'normal or preserved' cortico-subcortical neurocircuitries could be susceptible to this kind of treatment. In line with these assumptions, TRD patients displaying metabolically more active fronto-cingulate networks responded better to multiple HF-rTMS sessions. Furthermore, our results indicate that HF-rTMS treatment affects (pre)frontal cortical and hippocampal 5-HT_{2A} receptor binding indices in a different way, depending as to where these receptors are located in the brain. In short, our results demonstrate that HF-rTMS has immediate and prolonged neurobiological effects on the selected pathophysiological systems we examined in melancholic TRD patients. Furthermore, our results support the choice of the left DLPFC as a valid HF-rTMS target site to intervene with the neuronal pathways deregulated in major depression.

Curriculum Vitae

Chris Baeken graduated from High School, in 1987 (Koninklijk Atheneum Turnhout, Belgium). In June 1997, he obtained his MD degree at the Faculty of Medicine of the Vrije Universiteit Brussel (V.U.B.), Belgium. He completed his training as psychiatrist in 2002 at the University Hospital UZ Brussel, Belgium. From 2002 to 2007, he worked as a clinical psychiatrist in the Department of Psychiatry, where he became Head of Clinic in 2007. From 1998 to 2001, he followed a Postgraduate training in Cognitive behaviour therapy at the University of Antwerp, Belgium and graduated in 2002 (Flemish Federation of (Cognitive) Behaviour Therapy). From 1998 to 2000 he was a lecturer in General Psychiatry, Erasmus Hogeschool Brussels, Belgium, 2nd year nursing – obstetrics. In 2005, he obtained a Master degree in Affective Neuroscience (European Certificate in Anxiety & Mood Disorders) from the Universities 'Universiteit Maastricht, the Netherlands' and the 'Università degli Studi di Firenze, Italy'. He is an active member of the UZ Brussel Ethics Committee since 2003. He is author and co-author of several international peer-reviewed articles and he is reviewer for various journals. Under impulse of Prof. Dr. Hugo D'haenen, he started his doctoral thesis on neurobiological processes in mood and affective disorders in 2004.