
Objective: Recent data suggest HIV positive patients exposed to high early-life stress (ELS) demonstrate increased amygdala volumes. Yet it is not known whether these individuals exhibit changes in amygdala function, and whether such functional changes contribute to the increased rates of psychopathology commonly noted in HIV+ cohorts.

Participants and Methods: This pilot fMRI study included 14 HIV positive (HIV+; 9 male) and 13 age-matched HIV negative healthy control (HC; 6 male) adults (mean=46 years). ELS status was defined using the Early Life Stress Questionnaire (HIV+ High-ELS=7; HC High-ELS=4). A battery of psychological screening measures was administered. During fMRI scans, participants viewed facial images of negative emotion (anger, fear), which are known to elicit a robust blood oxygen level dependent (BOLD) response in the amygdala relative to resting baseline. Mean BOLD responses were extracted from the bilateral amygdala to examine the combined effects of HIV and high ELS on amygdala function.

Results: Compared to HC, HIV+ patients reported higher rates of apathy (p=.04), depression (p<.10), alexithymia (p<.10), and sociopathy (p=.03). A 2x2 ANOVA (HIV x ELS) controlling for Hepatitis C status revealed a main effect of ELS (p=.03). Planned pair-wise comparisons in the HIV+ group indicated marginal differences between HIV+ High-ELS and HIV+ Low-ELS (p=.13; r=.43), where ELS status accounted for 18% of the variance in amygdala activation, with HIV+ High-ELS demonstrating lower activations than HIV+ Low-ELS. Among HIV+, lower amygdala response was significantly correlated with higher levels of depression (r=-.56, p=.02), alexithymia (r=-.69, p<.01), and social isolation (r=.64, p=.01).

Conclusions: These data indicate that for HIV+ individuals, high ELS exposure contributes to reduced amygdala responsivity, which is associated with higher levels of psychological impairment. This suggests that ELS-related changes in amygdala activity may contribute to increased rates of psychopathology in HIV+ cohorts.

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THURSDAY AFTERNOON, JULY 11, 2013

Invited Address:
Frontotemporal Dementias: Behaviour, Cognition, Phenotypes and Genotypes

Presenter: Julie Snowden
12:00–1:00 p.m.

The frontotemporal dementias are clinically and pathologically heterogeneous. The predominant symptoms may be of problems in behavior, executive skills, language or conceptual knowledge. A proportion of patients show physical signs of amyotrophic lateral sclerosis. It is well recognized that patients’ behavioural/cognitive profile reflects the anatomical distribution of degenerative change within the anterior hemispheres. There is, however, growing evidence that it is also influenced by the type of underlying pathology and by genetic mutations associated with frontotemporal dementia. The talk considers the neuropsychological variation within the frontotemporal dementias and examines its relationship to pathology and genetics. Systematic associations are demonstrated, which suggest that behavioural/cognitive profiles, taken together with other clinical features, are predictors of pathology and genetic status. The talk shows the importance of neuropsychology in delineating the diversity of clinical phenotypes in frontotemporal dementia. It is argued that neuropsychology has a crucial role not only in clinical diagnosis and management of patients with frontotemporal dementia, but also in the theoretical understanding of disease mechanisms.

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Symposium 5: Mechanisms of Dysregulation of Thought and Emotion Within the Broad Autism Spectrum

Chair: Sophie van Rijn
Discussant: Hanna Swaab
12:00–1:30 p.m.


Symposium Description: Self-regulation is crucial for adaptation to the dynamic social environment humans live in. The aim of this symposium is illustrating the importance of understanding mechanisms of self-regulation and self-regulation deficiencies in relation to risk for psychopathology. Self-regulation, i.e. the ability to select and initiate complex behaviors in response to the specific conditions of the social environment, depends critically on the regulation of thought and emotions, involving a variety of neurocognitive functions with a prominent role for executive functions. This symposium is focused on the dysregulation of thought and affect and the consequences on mental health. The presentation of Petra Barneveld will focus on executive dysfunctioning in the prediction of risk for severe mental health problems, i.e. psychosis, in individuals with autism spectrum disorder. Marit Bierman will discuss the role of executive functioning and language in predicting dysregulation of thought, i.e. thought disorder, in individuals at risk for autism because of a genetic disorder (Klinefelter syndrome). Sophie van Rijn will also focus on Klinefelter syndrome, and argue that this high risk population is not only characterized by dysregulation of thought, but also dysregulation of emotion. She will present data on emotion regulation deficiencies, as expressed in autonomic arousal and eyetracking of social scenes, in relation to autism symptoms. Lien van Eyleen will present on profiles of executive dysfunctioning in autism and another genetic condition associated with high risk for autism, i.e. Neurofibromatosis, illustrating that different cognitive profiles of self-regulation impairments may exist within the broad autism spectrum. This set of four presentations will stress the importance of a neurocognitive approach in understanding the regulation of thought and emotion and the impact of dysfunctional self-regulation on mental health in terms of autistic and psychotic symptoms.

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Objective: Individuals with an extra X chromosome (Klinefelter syndrome) are at risk for problems in social functioning and have an increased vulnerability for autism traits. In the search for underlying mechanisms driving this increased risk, this study focused on social cognition and emotion regulation.

Participants and Methods: Seventeen adults with XXY and 20 non-clinical controls participated in this study. Eyetracking was used to investigate social attention, as expressed in visual scanning patterns in response to the viewing of empathy evoking video clips. Skin conductance levels, reflecting affective arousal, were recorded continuously during the clips as well. Participants’ understanding of own and others’ emotions in response to the clips was also assessed.

Results: Results showed reduced empathic understanding, decreased visual fixation to the eye region, but increased affective arousal in individuals with Klinefelter syndrome.