

the considerable variability in these neurobiological correlates between patients can be translated into the clinical setting.

Objectives We aimed to identify neuroimaging predictors of clinical course in patients with schizophrenia. Combined with the identification of genetically determined markers of schizophrenia risk, our studies aimed to elucidate the biological basis and the clinical relevance of inter-individual variability between patients.

Methods We included over 150 patients with schizophrenia and 279 healthy volunteers across five neuroimaging centers in the framework of the IMAGEMEND project [1]. We performed multiple studies on MRI scans using random forests and ROC curves to predict clinical course. Data from healthy controls served to normalize the data from the clinical population and to provide a benchmark for the findings.

Results We identified ensembles of neuroimaging markers and of genetic variants predictive of clinical course. Results highlight that (i) brain imaging carries significant clinical information, (ii) clinical information at baseline can considerably increase prediction accuracy.

Conclusion The methodological challenges and the results will be discussed in the context of recent findings from other multi-site studies. We conclude that brain imaging data on their own right are relevant to stratify patients in terms of clinical course; however, complementing these data with other modalities such as genetics and clinical information is necessary to further develop the field towards clinical application of the predictions.

Disclosure of interest Giulio Pergola is the academic supervisor of a Hoffmann-La Roche Collaboration grant that partially funds his salary.

Reference

[1] Frangou S, Schwarz E, et al. *World Psychiatry* 2016, doi: 10.1002/wps.20334.

<http://dx.doi.org/10.1016/j.eurpsy.2017.01.193>

S120

Neuroimaging findings in ADHD and the role of genetics

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ADHD is frequently diagnosed in children and adults. The disorder is highly heritable. However, the genetic architecture of ADHD is complex, with multiple genetic variants of individually small effect size contributing to disease in most patients.

In our own studies as well as in the large mega-analyses of the ENIGMA ADHD Working Group, we have investigated the brain substrates of ADHD. We find the disorder to be characterized by delayed sub-cortical and cortical growth of gray matter in childhood, which gradually normalizes in adulthood: sub-cortical volumes as well as cortical thickness and surface area are smaller in children with ADHD, but become indistinguishable from healthy individuals in adulthood. The situation looks different for white matter connectivity: both in childhood and adulthood, widespread differences in the major white matter tracts are found. The pattern of findings suggests that alterations in myelination might lie at the basis of such case-control differences. Since the disorder and many brain structural measures affected in ADHD are highly heritable, we investigated the overlap of genetic risk factors for ADHD with genetic factors involved in brain volume. This resulted in the identification of several genetic variants contributing to disease risk as well as ADHD-related brain phenotype.

In conclusion, we find ADHD to be a disorder of delayed brain maturation in terms of gray matter, but of persistently altered white matter connectivity across the lifespan. Genetic factors influencing both disease risk and brain measures might improve our understanding of disease etiology and persistence.

Disclosure of interest The author declares that he has no competing interest.

<http://dx.doi.org/10.1016/j.eurpsy.2017.01.194>

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Cortical and Sub-cortical volumetric abnormalities in bipolar disorder

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Previous MRI studies of bipolar disorder (BD) are often limited by small sample sizes and heterogeneity exists with regard to neuroimaging markers. To address these limitations, the ENIGMA Bipolar Disorder Working Group collected the largest BD neuroimaging data set ever studied ($n=6,500$). Here, we review findings from sub-cortical volume and cortical thickness and area analyses.

ENIGMA harmonized analysis methods were applied to 28 international pooled study samples of MRI data and involved sub-cortical and cortical imaging analyses. We assessed differences between BD and healthy controls (HC) using both mega and meta-analytic multiple linear regression models, adjusting for standard covariates (age, sex, etc.), and correcting for multiple comparisons.

Sub-cortical volume analysis revealed we found consistent volumetric reductions in BD patients for hippocampus and thalamus and enlarged lateral ventricles in patients. In BD, cortical gray matter was thinner in frontal, temporal and parietal regions of both brain hemispheres. BD had large general effects on mean gray matter thickness in both left and right brain hemispheres. Further we found that psychopharmacological treatment showed significant associations with cortical thickness and surface area.

The ENIGMA pipeline allows for identification of brain MRI abnormalities in BD in the largest analysis ever conducted. The results suggest a pattern of brain structure abnormalities, which provide novel insight in pathophysiology of BD, and potential effects of mood stabilizing agents.

Disclosure of interest Received speaker's honorarium from Lundbeck, Lilly, Otsuka

<http://dx.doi.org/10.1016/j.eurpsy.2017.01.195>

Symposium: Schizophrenia and clinical psychopathology: From research to clinical practice

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Are deficits in social cognition differentiating between schizophrenia and affective disorders

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Over the last decades, in matters of the assessment of psychopathology and its clinical consequences, there has been an increased interest in neurocognitive function including non-social and social cognition.

Classic psychopathology –as represented e.g. by the standardized AMDP system– focuses on pathognomonic signs for the categorization of syndromes [1] and differentiates between disturbances