Are schizophrenia, autistic, and obsessive spectrum disorders dissociable on the basis of neuroimaging morphological findings?: A voxel-based meta-analysis.

Cauda F1,2, Costa T1, Nani A1,2,3,4, Fava L1,2,3, Palermo S5, Bianco F6, Duca S1,2, Tatu K1,2, Keller R6.

Author information

1GCS-fMRI, Koelliker Hospital and Department of Psychology, University of Turin, Turin, Italy.
2Focus Lab, Department of Psychology, University of Turin, Turin, Italy.
3Department of Science, University of Eastern Piedmont, Italy.
4Michael Trimble Psychiatric Research Group, University of Birmingham and BSMHFT, Birmingham, UK.
5Department of Neuroscience, University of Turin, Turin, Italy.
6Adult Autism Center, Local Health Unit DSM ASL TO2, Turin, Italy.

Abstract

Schizophrenia spectrum disorder (SCZD), autism spectrum disorder (ASD), and obsessive-compulsive spectrum disorder (OCSD) are considered as three separate psychiatric conditions with, supposedly, different brain alterations patterns. From a neuroimaging perspective, this meta-analytic study aimed to address whether this nosographical differentiation is actually supported by different brain patterns of gray matter (GM) or white matter (WM) morphological alterations. We explored two possibilities: (a) to find out whether GM alterations are specific for SCZD, ASD, and OCSD; and (b) to associate the identified brain alteration patterns with cognitive dysfunctions by means of an analysis of lesion decoding. Our analysis reveals that these psychiatric spectra do not present clear distinctive patterns of alterations; rather, they all tend to be distributed in two alteration clusters. Cluster 1, which is more specific for SCZD, includes the anterior insular, anterior cingulate cortex, ventromedial prefrontal cortex, and frontopolar areas, which are parts of the cognitive control system. Cluster 2, which is more specific for OCSD, presents occipital, temporal, and parietal alteration patterns with the involvement of sensorimotor, premotor, visual, and lingual areas, thus forming a network that is more associated with the auditory-visual, auditory, premotor visual somatic functions. In turn, ASD appears to be uniformly distributed in the two clusters. The three spectra share a significant set of alterations. Our new approach promises to provide insight into the understanding of psychiatric conditions under the aspect of a common neurobiological substrate, possibly related to neuroinflammation during brain development. Autism Res 2017. © 2017 International Society for Autism Research, Wiley Periodicals, Inc.

© 2017 International Society for Autism Research, Wiley Periodicals, Inc.

PMID: 28339164 DOI: 10.1002/aur.1759
Uno studio condotto sui dati relativi a oltre 7000 risonanze magnetiche encefaliche cui ha collaborato il Centro pilota per i disturbi dello spettro autistico in età adulta del DSM della ASL Città di Torino ha approfondito i punti in comune e le diversità neurobiologiche cerebrali esistenti tra la schizofrenia e l’autismo. È stato usato come gruppo di controllo il disturbo ossessivo compulsivo.

Si è evidenziato un cluster cerebrale maggiormente specifico per la schizofrenia nelle aree anteriori del cervello (insula anteriore, corteccia anteriore del cingolo, corteccia prefrontale ventromediale, aree frontopolari) mentre per il disturbo ossessivo compulsivo emerge un maggior coinvolgimento di un cluster posteriore, in aree sensorimotorie, premotorie, visive e lingula, in sede parieto-temporo-occipitale. Le aree alterate nell’autismo si situano distribuite in modo uniforme tra i due cluster. Questo nuovo approccio di analisi neuroradiologica fornisce delle informazioni relativi ai substrati neurobiologici di queste condizioni e al possibile ruolo della neuroinfiammazione durante lo sviluppo del cervello nella patogenesi dei disturbi