Borderline Personality Disorder Adolescence – adulthood transition



Intermittent hostility

Heterotypic continuity: Developmental process with consistent and continued functional impairment but with changing expression

BPD in the adolescence Biological basis





F. ORIENTA - CPB SSM - VHIB

BPD in the adolescence Phenotype and biological underpinning



PROYECTO DE INVESTIGACIÓN DE SALUD

DATOS DE LA SOLICITUD

Para que esta solicitud sea válida ES IMPRESCINDIBLE que tenga entrada entre el martes, 03 de marzo de 2015 y el jueves, 26 de marzo de 2015 inclusive, con la firma original del representante legal del centro, en alguno de los Registros Públicos regulados en el artículo 38.4 de la Ley 30/1992, de 26 de noviembre, de Régimen Jurídico de las Administraciones Públicas y del Procedimiento Administrativo Común.

Para que la solicitud sea ADMITIDA No olvide enviar al FIS, en el formato exigido, los documentos específicos que la convocatoria considera parte integrante de la solicitud

DATOS DE SOLICITUD

Nº de Expediente PI15/02025

Investigador Principal MARC FERRER VINARDELL

TÍTULO DEL PROYECTO

Trastorno Límite de la Personalidad de debut en el adolescente: estudio de las alteraciones neurobiológicas estructurales y funcionales

Case – control study (40 BPD adolescents – 40 healthy adolescents) 14-18 years Clinical and psychometric assessment SCID-II; DIB-R; BPFSC-11; 6PFJunior/49; BIS-11; CTQ-SF WISC-5

fMRI

BPD in the adolescence Phenotype and biological underpinning

Diagnóstico de TLP por SCID-II >= 5 DESPISTAJE de otros trastornos que expliquen mejor

Criteris d'Inclusió:



- Coeficient intel·lectual dins de la normalitat (>80),
 - Absència d'anòxia perinatal, traumatisme cranioencefàlic, alteracions neurològiques i/o haver estat sotmès a cirurgia cerebral,
- Consentiment informat per escrit del seu representant legal abans de l'inici de l'estudi.

Criteris d'Exclusió:

- Presència de condicions mèdiques que impedeixin realitzar la RM (marcapassos, objectes metàl·lics inserits en l'organisme, etc.),
- Diagnòstic de TDAH, trastorn generalitzat del desenvolupament, trastorn per consum de substàncies, trastorn bipolar, esquizofrènia o trastorn esquizoafectiu, antecedents de traumatisme cranioencefàlic,
- Més de sis mesos de tractament psicofarmacològic continuat.



Functional and structural MRI study

• Functional MRI

NBACK Autobiographical memory Self other task

• Structural MRI

T1, T2 DTI

An fMRI study of working memory in borderline personality disorder





- 28 patients
- 28 controls matched for age, sex, estimated IQ
- Scanned while performing 1 and 2 back versions of the n-back task
 - + baseline task of viewing sequence of asterisks
 - 1.5T scanner
 - Blocked design

Tarea de N-BACK





1-BACK

Tarea de N-BACK





2-BACK

fMRI BOLD: Rapid Overview



Contrasting experimental stimuli cause changes in local brain blood supply which are measured by rapid, repeated measurements of MR signal, and statistically mapped onto brain anatomy



Borderline disorder patients vs controls

N=28 patients vs 28 HS



The ACC forms part of the default mode network





- A network of brain regions discovered in 2001
- Have in common that they are active at rest but de-activate during performance of most cognitive tasks
 - Also activates during performance of a small number of certain tasks
- One of the two midline regions is in the ACC
 - Anterior: medial PFC/ACC
 - Posterior: PCC/precuneus

(Gusnard et al, 2001; Raichle et al, 2001; Greicius et al, 2003)



What does the default mode network do?

- Active when individuals are engaged in internal mentation
 - eg daydreaming, remembering personal events, thinking about the future, thinking about the perspectives of others.
- May also have a role in low-level monitoring of the external world for unexpected events
 - An exploratory state or watchfulness

(Buckner et al, 2008)



Paradigms that activate the DMN

• Autobiographical recall

Childhood theater school

Vs.

Childhood sweet recipe

Words associated with autobiographical recall are compared to neutral words



Activation of DMN regions



Paradigms that activate the DMN

• Self versus other judgments



Activation for 'self' in comparison to 'fact' responses



Convergent structural and functional abnormality in borderline disorder?

A grey matter VBM study of 76 borderline patients vs 76 HS



Whole-brain VBM analysis

BPD showed three clusters of grey matter reduction, all in the frontal cortex. A cluster of 1014 voxels was seen in the **medial frontal cortex**, located mostly subgenually, extending from the gyrus rectus to the anterior cingulate gyrus There were also two roughly symmetrical clusters in the **lateral frontal cortex**

Converging Medial Frontal Resting State and Diffusion-Based Abnormalities in Borderline Personality Disorder

Raymond Salvador, Daniel Vega, Juan Carlos Pascual, Josep Marco, Erick Jorge Canales-Rodríguez, Salvatore Aguilar, Maria Anguera, Angel Soto, Joan Ribas, Joaquim Soler, Teresa Maristany, Antoni Rodríguez-Fornells, and Edith Pomarol-Clotet



Figure 3. Converging genual and perigenual abnormalities in borderline personality disorder. An overlap of several contrasts involving medial-frontal abnormalities are shown in sagittal (A) and axial (B) slices. White matter alterations in fractional anisotropy shown in blue enclose medial clusters of: 1) altered mean diffusivity shown in red, 2) abnormal global brain connectivity shown in green, and 3) a small region of increased connectivity with the left amygdala (cluster of abnormal amplitude of lowfrequency fluctuations), which is shown in purple ($p_{corrected} < .05$) with an enlarged version (puncorrected < .001) shown in yellow.

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Thank you







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