The effects of distractors in unilateral spatial neglect: Evidence from an eye-tracking device

Alberto García-Molina\textsuperscript{1,2,3,*}, Rebeca Lauren Emerson\textsuperscript{1,2,3}, Jaume López Carballo\textsuperscript{1,2,3}, Stefan J. Lentzlin\textsuperscript{4}, Juan García Fernández\textsuperscript{1,2,3}, Celeste Aparicio-López\textsuperscript{1,2,3}, Rocío Sánchez-Carrión\textsuperscript{1,2,3}, Pablo Rodríguez Rajo\textsuperscript{1,2,3}, Antonia Enseñat-Cantallop\textsuperscript{1,2,3}, Joan Deus Yela\textsuperscript{1,2,3}

\textsuperscript{1} Institut Guttmann, Institut Universitari de Neurorehabilitació adscrit a la UAB, Badalona, Barcelona, Spain
\textsuperscript{2} Universitat Autònoma de Barcelona, Bellaterra (Cerdanyola del Vallès), Spain
\textsuperscript{3} Fundació Institut d’Investigació en Ciències de la Salut Germans Trias i Pujol, Badalona, Barcelona, Spain
\textsuperscript{4} Twente University, Enschede, The Netherlands

Introduction: Disrupted visual search is a common symptom in unilateral spatial neglect (USN).

Objective: To examine the influence of distractors on visual behaviour in patients with USN when confronted with a vertically moving visual stimuli task using the approach of monitoring eye movements with an eye-tracking device.

Methods: Thirty-one right hemisphere stroke patients with USN were recruited. They performed a task in which participants were asked to click on the target stimuli that appeared from the top of the screen and moved vertically downwards. The task had two conditions: with and without distractors. We assessed performance in two ways, by scoring correct answers and by the percentage of time spent searching for targets measured over five vertical columns, i.e., (1) leftmost, (2) left, (3) central, (4) right, (5) rightmost.

Results: Participants scored a higher number of correct answers when there were no distractors on column 1 (t(30) = 2.619; 95% CI: 0.003 to 0.029; \(p = 0.014\); Cohen’s \(d = 0.3\)) and column 2 (t(30) = 3.363; 95% CI: 0.013 to 0.053; \(p = 0.002\); Cohen’s \(d = 0.33\)). When distractors were present participants scored a higher number of correct answers on column 4 (t(30) = −1.430; 95% CI: −0.093 to −0.025; \(p = 0.001\); Cohen’s \(d = 0.45\)).

With respect to search time, participants spent more time searching for stimuli on column 1 when there were no distractors (t(30) = 2.723; 95% CI: 0.006 to 0.042; \(p = 0.011\); Cohen’s \(d = 0.23\)). When there were distractors more time was spent searching column 4 (t(30) = −3.367; 95% CI: −0.101 to −0.024; \(p = 0.002\); Cohen’s \(d = 0.37\)).

Conclusion: Distractors influence patients’ performance and search time, limiting left visual search and reducing the number of correct left answers.

Keywords: Stroke; Unilateral spatial neglect; Eye-tracker; Distractors

References


http://dx.doi.org/10.1016/j.anpsic.2016.10.001 0066-5126/
Registering visual search within unilateral spatial neglect using an eye-tracking device

Alberto García-Molina1,2,3,*, Rebeca Lauren Emerson1,2,3, Jaume López Carballo1,2,3, Stefan J. Lentelink4, Juan García Fernández1,2,3, Celeste Aparicio-López1,2,3, Rocío Sánchez-Carrión1,2,3, Pablo Rodríguez Rajo1,2,3, Antonia Enseñat-Cantallops1,2,3, Joan Deus Yela1,2,3

Introduction: Patients with Unilateral Spatial Neglect (USN) display a biased exploratory visual search towards the contralesional hemifield.

Objective: To examine eye movements in patients with USN when confronted with a vertically moving stimuli task while monitoring visual search with an eye-tracking device.

Methods: Thirty-one right hemisphere stroke patients with USN were recruited. They performed a task in which participants were asked to click on the target stimuli that appeared from the top of the screen and moved vertically downwards. The task had two conditions: with and without distractors. The eye-tracking device registered ocular movements on both conditions. Based on the horizontal (X-axis; range: 0-1) and vertical coordinates (Y-axis; range: 1-0) of the screen we calculated the average gaze-position for each condition.

Results: The average gaze-position [X; Y] was [0.54; 0.48] in the non-distractors condition and [0.59; 0.44] in the distractors condition. We found significant differences in the average gaze-position in the X-axis between the two conditions [0.54 (0.11) vs. 0.59 (0.12); t(30) = -2.766; 95% CI: -0.085 to -0.012; p = 0.010; Cohen’s d = 0.42]. With respects to average gaze-position for axis Y there were also significant differences [0.48 (0.13) vs. 0.44 (0.14); t(30) = 2.446; 95% CI: 0.006 to 0.071; p = 0.021; Cohen’s d = 0.28].

Conclusion: Distractors negatively influence visual search. They are able to modify the average gaze-position, both horizontally and vertically.

Keywords: Stroke; Unilateral spatial neglect; Eye-tracker; Visual search

References


Cognitive functions, coping strategies and psychological distress in patients with resected cancer receiving chemotherapy

Caterina Calderón Garrido1,*, Alberto Carmona-Bayonas3, Sara Fernández Arrojo1, Eva Martínez de Castro4, Alejandra Rodríguez Capote2, Pilar de la Morena2, María Angeles Vicente2, María de las Nieves Gómez Camachó3, Ana Fernández2, Paula Jiménez-Fonseca2

Background: The loss of cognitive functions is a symptom that impairs the quality of life and one of the most feared by cancer patients.

Objectives: The aim of this study is to analyze the cognitive functioning in cancer patients initiating chemotherapy and to study the relationship between coping strategies, and psychological distress.

Methods: NEOcoping is a prospective, multicenter and observational study. The project involves 23 Spanish hospitals and 34 researchers. The study has a website to collect clinical data and questionnaires for doctors and patients that are filled out before starting adjuvant chemotherapy and at the end of the treatment. The applied tests were: Mini-Mental Adjustment to Cancer (MAC), EORTC QLQ-C30 (cognitive function scale), and Brief Symptom Inventory (BSI-18).

Results: One hundred and ninety five patients’ data (mean 58 years, and 60% female) were recruited. The primary tumor localization was mainly colon (41%) and breast (34%). The results indicate that patients perceive that their physical condition or treatment interferes with their cognitive functions (concentration, memory, etc.) have coping strategies more anxious characterized by a constant concern for health type, fear of the spread or recurrence of the disease that leads to frequent reaffirmation search (t = 2.699, p = .008). The cognitive function problems were
negatively related with somatization (t = 4.344, p < .001), depression (t = 4.280, p < .001) and anxiety (t = 4.777, p < .001).

Conclusion: The perceived loss of cognitive abilities, uncertainty and loss of control of the cancer survivor patient may hinder adaptation to their situation, the loss of quality of life and greater emotional distress.

Keywords: Cognitive functions; Anxious strategies; Quality of life and psychological distress

Disclosure: This research has been funded by a grant from Sociedad Española de Oncología Médica (SEOM).

References


Social cognition in early phases of psychosis: A case-control study of gender-related differences

Guillem Navarra1,*, Sol Fernández-Gonzalo1,2, Marc Turón1,3, Esther Pousa2, Diego Palao4,5, Mercè Jodar6

1 Clinical and Health Psychology Department, Universitat Autònoma de Barcelona (UAB), Bellaterra, Barcelona, Spain
2 Research Department, Innovation and Investigation Institute Parc Taulí (I3PT), Universitary Institute, UAB, Sabadell, Barcelona, Spain
3 CIBERS, Instituto de Salud Carlos III, Madrid, Spain
4 Mental Health Department, Parc Taulí Hospital, Universitary Hospital-UAB, Sabadell, Barcelona, Spain
5 Department of Psychiatry and Forensic Medicine, Universitat Autònoma de Barcelona, Bellaterra, Barcelona, Spain
6 Neurology Department, ParcTaulí Hospital, Universitary Hospital-UAB, Sabadell, Barcelona, Spain

Background: Deficits across multiple Social Cognition (SC) domains have been found in schizophrenia (Savla, Vella, Armstrong, Penn, & Twamley, 2012). However, gender-related differences in specific aspects of SC such as Theory of Mind (ToM) (Abu-Akel & Bo, 2013) and Emotional Processing (EP) (Erol, Putgul, Kosger, & Ersoy, 2013; Scholten, Aleman, Montagne, & Kahn, 2005) are almost unexplored.

Objective: To study possible gender-related differences in Affective (AtOM) and Cognitive ToM (CtOM) and EP skills in patients with recent diagnosis of psychosis and healthy subjects.

Methods: 39 patients (19 males, 20 females) with schizophrenia/schizoaffective disorder and 39 healthy subjects (19 males, 20 females), matched by age and years of education, were recruited. The Reading the Mind in the Eyes Test (RMET) was used to evaluate AtOM. First and Second-order False-Believe tasks (FB_1o and FB_2o) were used to evaluate CtOM. The Pictures of Facial Affect (POF A) was used to evaluate EP.

Results: Patients’ performance was significantly impaired in RMET (p < 0.001), FB_2o (p = 0.002) and POF A (p < 0.001), but not in FB_1o. No significant differences were found between male and female patients in any tests. However, significant gender-related differences were observed in RMET (p = 0.004) and POF A fear (p = 0.004) in healthy subjects.

Conclusions: Gender-related differences were only found in healthy subjects, with females outperforming males in AtOM and specific aspects of EP (fear recognition). Thus, these results suggest that SC performance in patients could be attributable to the illness itself, rather than gender. Further studies focused on the identification of the specific illness characteristics related to the SC difficulties in psychosis, and in the relation between EP and AtOM in healthy subjects will be discussed.

Keywords: Psychosis; Gender differences; Social cognition; Theory of mind; Emotional processing

References


Decision making, obesity and binge eating. Taking the risk toward future interventions in eating disorders

J. Ottino1,3,8,*, M. Garolera3,4,5, I. Marqués-Iturria1,3, P. González-Tartière1, I. García-García1,3,6, X. Calduí1,3,8, X. Prats1, M.J. Sender-Palacios4,7, M. Vernet-Vernet4,7, M.A. Jurado1,2,3,8

1 Department of Clinical Psychology and Psychobiology, University of Barcelona, Spain
2 Consolidated Research Group in Neuropsychology, University of Barcelona, Spain
3 Institute of Neurosciences, University of Barcelona, Spain
4 Brain, Cognition and Behavior Clinical Research Group, Consorci Sanitari de Terrassa, Spain
5 Unit of Neuropsychology, Consorci Sanitari de Terrassa, Spain
6 Max Plank Institute for Human Cognitive and Brain Sciences, Leipzig, Germany
Introduction: Binge eating (BE) is a disrupted eating pattern characterized by an excessive, rapid and compulsive food intake (Danner, Ouwehand, Van Haastert, Hornsveld, & De Ridder, 2012; Voon, 2015). This may lead to overweight and obesity, plus some other psychological and medical conditions (Voon, 2015). Impairment in decision making (DM) was suggested as an underlying factor in disrupted eating behavior in both obesity and BE (Billingsley-Marshall, 2013; Danner et al., 2012; Davis, Patte, Curtis, & Reid, 2010; Manasse et al., 2014, 2015). Despite this, some studies did not found differences in DM between obese with and without BE (Danner et al., 2012; Manasse et al., 2014; Svaldi, Brand, & Tuschen-Caffier, 2010).

Objective: The aim of this study is to clarify the role that decision making has over eating behavior in order to suggest new frameworks of intervention.

Methods: DM was assessed using the Iowa’s Gambling Test (IGT) on a healthy sample of obese adult women with n = 16 and without BE (n = 16). BE group was formed according to BITE symptoms subscale (≥10). Parametric (t-test) and non-parametric tests (Mann–Whitney’s U) were performed using IBM SPSS Statistics (v.21.0). Effect size (r) was calculated for each significant difference (p < 0.05).

Results: There were no significant differences in demographic variables. BE group performed worse in almost every IGT variables. BE group chose bad decks most (A < B) (p = .009, r = .45) over than good decks (C < D) (p = .009, r = .45), lost more money (p = .022, r = .40) and behaved more risky than non-BE group overall (p = .012, r = .47), showing difficulties in learning from negative feedback and hypersensitivity to positive reinforcement.

Conclusion: Impaired decision making may lead to unhealthy choices and disrupted eating behaviors. Besides psychological state and personality traits, executive function training might be a good aim for future interventions in eating disorders.

Keywords: Obesity; Binge eating; Decision making; IOWA; Executive functions


References


Estudi sobre el Rendiment Executiu dels pacients amb Trastorn de la Conducta Alimentària

Marta Molins1,2,*, Anna Sintes1, Meritxell Pacheco2, Alba Castells1,3, Jordina Tor4, Laia Portolés1,2, Eduard Serrano1, Montserrat Dolz1

1 Servei de Psiquiatria i Psicologia infanto-juvenil, Hospital Sant Joan de Déu, Esplugues de Llobregat, Barcelona, Spain
2 Universitat Ramon Llull, Spain
3 Universitat de Barcelona, Spain
4 Fundació Sant Joan de Déu, Spain

Introduction: Eating disorders (ED) are increasingly affecting teenagers. There are cognitive deficits especially with the executive functions, highlighting the difficulties in central coherence and cognitive flexibility (Duchesne et al., 2004; Fagundo et al., 2012; Roberts, Tchanturia, & Treasure, 2010, 2013; Stuss et al., 2007; Tchanturia, Campbell, Morris, & Treasure, 2005). There is a growing interest in knowing whether they are predisposing factors or consequences of the disease, especially in child and adolescent population.

Method: The present study investigates neuropsychological changes associated with weight improvement, the differences between groups evaluated by the Body Mass Index (BMI) and the correlations between cognitive and psychopathological variables. The research includes 51 patients with eating disorders, admitted at the Hospital Sant Joan de Déu, and makes use of a neuropsychological battery, and self-report questionnaires. Subsequently, 13 patients who had achieved the established clinical improvement were included in the study.
Results: The results indicate that there are no differences in most cognitive domains in the longitudinal study (p > 0.05), although there are significant differences in cognitive flexibility, evaluated by the Trail Making Test B, getting better scores in the retest. There are differences by groups made by BMI in cognitive flexibility and resistance to interference (p < 0.05 and p < 0.01) being those who weigh less the ones who perform better. Moreover, there are significant correlations between executive functions and a wide range of psychopathological variables (BMI, Impulse Regulation, Drive for Thinness, Body Dissatisfaction, Depression, Anxiety, etc.).

Conclusions: These results suggest that the cognitive difficulties are a predisposing factor and, therefore, do not remit when the weight improves.

Keywords: Eating disorders; Neuropsychology; Executive functions; Cognitive flexibility; Central coherence

References


Emotion regulation strategies and frontolimbic functional connectivity

Maria Picó-Pérez1-3,*, Pino Alonso1,2,3, Narcís Cardoner1,4,5, Marta Subirà1,2,3, Clara López-Solá1,3,4, Cinto Segalàs1,2, Ignacio Martínez-Zalacaín1, Eva Real1,2, Rosa Hernández-Ribas1,2,3, José M. Menchón1,4,3, Carles Soriano-Mas1,2,6

1 Department of Psychiatry, Bellvitge University Hospital-IDIBELL, Barcelona, Spain
2 Carlos III Health Institute, Centro de Investigación Biomédica en Red (CIBERSAM), Barcelona, Spain
3 Department of Clinical Sciences, School of Medicine, University of Barcelona, Barcelona, Spain
4 Mental Health Department, Corporació Sanitària Parc Taulí, Sabadell, Spain
5 Department of Psychiatry and Forensic Medicine, Universitat Autònoma de Barcelona, Barcelona, Spain
6 Department of Psychobiology and Methodology in Health Sciences, Universitat Autònoma de Barcelona, Barcelona, Spain

Introduction: Emotion regulation may be thought of as the capacity of prefrontal cortex regions to regulate activity in limbic regions (Ochsner, Silvers, & Buhle, 2012), but this frontolimbic connectivity may differ as a function of the emotion regulation strategy at use. In this study we aimed at differentiating the corticolimbic functional connectivity correlates of two emotion regulation strategies: cognitive reappraisal and suppression (Gross & John, 2003).

Methods: 48 healthy controls completed the Emotion Regulation Questionnaire (ERQ) (Gross & John, 2003) and underwent a resting-state functional magnetic resonance imaging acquisition. Functional connectivity (FC) of basolateral and centromedial amygdala (BLA/CMA) (Baur, Hänggi, Langer, & Jäncke, 2013) with a set of regions related to emotion regulation (prefrontal cortex, insula and cingulate cortex) was estimated with a seed-based approach. Scores in the suppression and reappraisal factors of the ERQ were correlated with FC maps.

Results: We found that FC between the left BLA and the left insula, and between the right BLA and the dorsomedial prefrontal cortex (dmPFC), was inversely correlated with reappraisal scores. On the other hand, FC between the right ventrolateral prefrontal cortex (vPFC) and the left BLA correlated inversely with suppression scores, while FC between the dmPFC and the right BLA was directly correlated with suppression capacity. Finally, FC between the left CMA and the dmPFC was inversely correlated with suppression scores.

Conclusion: In conclusion, BLA connectivity appears to be more related to emotion regulation strategies than CMA connectivity, with a specific pattern of associations for reappraisal (lower left BLA-left insula and right BLA-dmPFC coupling) and for suppression (lower left BLA-right vPFC connectivity and higher right BLA-dmPFC coupling) strategies.

Keywords: Functional connectivity; Emotion regulation; Amygdala; Cognitive reappraisal; Suppression

References


**Neurobiological correlates of electroconvulsive therapy effects in treatment-resistant depression: Longitudinal multimodal neuroimaging approach**

Marta Cano1,2,∗, Narcis Cardoner1,3, Ignacio Martinez-Zalacaín1, Harry Hallock4, Jesús Pujo5,4, Mikel Urretavizcaya1,2,5, Esther Via4, Oren Contreras-Rodriguez1,2, José M. Menchón1,2,5, Michael Valenzuela4, Carles Soriano-Mas1,5,7

1 Department of Psychiatry, Bellvitge University Hospital-IDIBELL, Hospitalet de Llobregat, Barcelona, Spain
2 Department of Clinical Sciences, School of Medicine, University of Barcelona, Barcelona, Spain
3 Mental Health Department, Parc Tauli Sabadell, Universitat Autònoma de Barcelona, Barcelona, Spain
4 Regenerative Neuroscience Group, Brain and Mind Centre, University of Sydney, Sydney, Australia
5 Carlos III Health Institute, CIBERSAM, Spain
6 MRI Research Unit, Hospital del Mar, Barcelona, Spain
7 Department of Psychobiology and Methodology in Health Sciences, Universitat Autònoma de Barcelona, Barcelona, Spain

**Background:** Neuroplasticity and neuroinflammation have been proposed as two possible mechanisms of action of electroconvulsive therapy (ECT) (Andrade & Bolwig, 2014; Bouckaert et al., 2014, 2016). Although both hypotheses may be supported by medial temporal volume increases (Abbott et al., 2014; Bouckaert et al., 2016; Dukart et al., 2014; Joshi et al., 2016; Nordanskg et al., 2010; Nordanskg, Larsson, Larsson, & Johanson, 2014; Ota et al., 2015; Sartorius et al., 2016; Tendolkar et al., 2013) the specific mechanisms of action still remain unclear.

**Objective:** To assess changes in (1) regional gray matter (GM) volumes, (2) hippocampal subfields volumes, and (3) hippocampal metabolite concentrations during a bilateral ECT course, and to explored the putative differences between bilateral (BL) ECT vs. right unilateral (RUL) ECT.

**Methods:** Longitudinal structural magnetic resonance and spectroscopy study. We assessed 12 patients with treatment-resistant depression (TRD) throughout the entire course of a BL ECT protocol and 10 healthy participants at two neuroimaging examinations.

**Results:** Patients with TRD showed limbic complex and perigenual anterior cingulate cortex volume increases. Hippocampal subfield segmentation revealed volume increases of hippocampal CA2/3, subiculum and CA4/dentate gyrus regions. The limbic complex volume increase was associated with an hippocampal N-acetylaspartate concentration decrease and an hippocampal Glutamate + Glutamine concentration increase. Patients with TRD who underwent a RUL ECT protocol, showed a GM volume increase limited to the right hippocampal complex.

**Conclusions:** Our findings suggest that both forms of neuroplasticity and neuroinflammatory changes may be mechanisms of action of ECT. In this sense, our findings may also suggest the existence of a common neurobiological mechanism accounting for ECT-induced clinical improvement and cognitive side-effects (e.g., memory and executive function impairment (Scott, 2010; Semkovska, Keane, Babalola, & McLoughlin, 2011)).

**Acknowledgments:** This study was supported in part by the Carlos III Health Institute (P09/01961 and CIBER-CB06/03/0034), FEDER funds, “A way to build Europe”, and by the Agency of University and Research Funding Management of the Catalan Government (AGAUR; 2014SGR1672). M.C. is supported by a grant from the Spanish Ministry for Education, Culture and Sport (FPU13/02141). O.C.-R. is supported by Sara Borrell postdoctoral fellowships from the Carlos III Health Institute (CD14/00246). C.S.-M. is funded by a Miguel Servet contract from the Carlos III Health Institute (CP10/00604).

**Keywords:** Treatment-resistant depression; Electroconvulsive therapy; Hippocampus; N-acetylaspartate; Glutamate + Glutamine

**References**


Cognitive changes in Parkinson’s disease: A 4 year follow-up study

A. Campobasa1,2,3,*, B. Segura1,2, H.C. Baggio1,2, C. Uribe1,2, A. Abos1,2, A.I. Garcia-Diaz1,2, Y. Compta2,4,5, M.J. Martí2,4,5, F. Valdeolmillos2,4,5, C. Junque1,2,3,5

1 Medical Psychology Unit, Department of Medicine, Faculty of Medicine, University of Barcelona, Barcelona, Catalonia, Spain
2 Institute of Neurosciences, University of Barcelona, Barcelona, Catalonia, Spain
3 Institute of Biomedical Research August Pi i Sunyer (IDIBAPS), Barcelona, Catalonia, Spain
4 Movement Disorders Unit, Neurology Service, Hospital Clinic de Barcelona, Barcelona, Catalonia, Spain
5 Centro de Investigación Biomédica en Red sobre Enfermedades Neurodegenerativas (CIBERNED), Hospital Clinic de Barcelona, Barcelona, Catalonia, Spain

Introduction: Although Parkinson’s disease (PD) is a degenerative illness, changes over time in cognition are mild. Longitudinal studies have reported impairment in speed of processing, memory and verbal fluency (Broeders et al., 2013; Muslimovic, Post, Speelman, De Haan, & Schmand, 2009). Cortical changes related to cognitive decline have been poorly investigated.

Objective: The aim of the study was to investigate differences in the progression of cognitive decline in PD patients compared to healthy controls (HC) and its neuroanatomical correlations.

Method: Forty-four PD patients and 22 HC underwent neuropsychological and magnetic resonance imaging assessment (scan interval $\mu = 45.7$ months). Repeated measures ANOVA were performed from adjusted $z$-scores (Aarsland, Brannick, Larsen, Tynsøe, & Alves, 2009). Patients were classified as having mild cognitive impairment (MCI) according to recent diagnostic criteria (Litvan et al., 2012). Subcortical segmentations and parcellations were extracted using FreeSurfer software and correlated with neuropsychological percentage of change.

Results: There were significant interactions group per time in semantic fluency ($F = 4.23$; $p = 0.044$), total recall ($F = 4.99$; $p = 0.029$) and delayed recognition from Rey’s Auditory-Verbal Learning Test (RAVLT) ($F = 9.33$; $p = 0.003$), Trail Making Test Part A ($F = 5.29$; $p = 0.025$) and B ($F = 5.69$; $p = 0.020$), Symbol Digit Modalities Test ($F = 12.27$, $p < 0.0001$) and Stroop Word-Color ($F = 5.84$; $p = 0.19$). Over 4 years, 29 (66%) patients had PD-MCI from which 16 (36%) were cognitively preserved at baseline and 2 (5%) PD-MCI patients converted to PD dementia. Hippocampal volume correlated with percentage of change in RAVLT total recall ($r = 0.413$; $p = 0.011$).

Conclusions: PD patients had significant decline of speed processing, memory and semantic fluency and an increased rate of MCIs over time. Progressive hippocampal degeneration is related to verbal learning memory changes.

Keywords: Parkinson’s disease; Mild cognitive impairment; Neuropsychological tests; Cortical atrophy

Disclosure: Spanish Ministry of Economy and Competitiveness (PSI201341393P), Generalitat de Catalunya (2014SGR 98), Fundació La Marató de TV3 in Spain (20142310), CU was supported by a fellowship from 2014, Spanish Ministry of Economy and Competitiveness (BES2014068173) and cofinanced by the European Social Fund (ESF) and AA was supported by a fellowship from 2016, Departament d’Empresa i Conexió de la Generalitat de Catalunya, AGAUR (2016FI_B 00360).

References


Introduction: Fronto-subcortical alterations have been widely described in Parkinson’s disease (PD). Furthermore, frontal dysfunction has been related to metamemory impairment (Janowsky, Shimamura, & Squire, 1989; Smith, Souchay, & Moulin, 2011) which is still poor investigated in PD.

Objective: The aim of the current study was to investigate metamemory in PD patients with different patterns of cortical thinning. We hypothesized that patients with frontal atrophy will loss the normal correlation between real performance and its estimation due to the loss of feedback mechanism.

Method: Rey Auditory-Verbal Learning Test and self-appraisal of the test performance were assessed in a sample of 41 non-demented PD patients and 22 healthy controls (HC). PD patients were classified in three different groups according to cortical thickness patterns identified by cluster analysis (Uribe et al., 2016). There was a first pattern with parietal-temporal atrophy; a second with frontal and occipital atrophy and a third without atrophy. Spearman’s correlations were computed with SPSS software.

Results: There were significant correlations between RAVLT delayed recall and subjective performance in HC (rho = 0.628; p = 0.002), all PD sample (rho = 0.598; p < 0.0001) and PD-MCI patients (rho = 0.699; p < 0.0001). Regarding PD subgroups, we obtained significant correlations in non-atrophic subgroup (rho = 0.595; p = 0.004) and frontal and occipital atrophy subgroup (rho = 0.661; p = 0.007). No significant correlations were found in patients with parietal-temporal atrophy (rho = 0.289; p = 0.637).

Conclusions: The impairment of metamemory in PD is associated with the presence of parietal-temporal atrophy.

Keywords: Parkinson’s disease, metamemory, magnetic resonance imaging, cortical thickness.
**Results:** The neuropsychological profile suggests a deep subcortical and frontal dysfunction with some progression during the last year.

**Conclusions:** Given the variability in the evolution of HAND, the worst evolution in older individuals and in coinfected patients, it is recommended to carry out a neuropsychological assessment to study the evolution of patients’ state, since often there is not a functional translation of the brain lesions.

A neuropsychological evaluation is compulsory in order to establish an early and specific cognitive rehabilitation.

**Keywords:** HIV; Toxoplasmosis; Coinfections; Neuropsychological profile

**References**


**Brain structural correlates of subclinical obsessive-compulsive symptoms in healthy children**

Maria Suñol1,−, Carles Soriano-Mas2, Oren Contreras-Rodríguez2, Didac Macia3, Gerard Martinez2, Ignacio Martínez-Zalacain1, Marta Subirà2, Jesús Pujol4, Jordi Sunyer5

1 Department of Psychiatry, Bellvitge Biomedical Research Institute-IDIBELL, L’Hospitalet de Llobregat, Spain
2 Department of Psychiatry, Bellvitge Biomedical Research Institute-IDIBELL; CIBERSAM, L’Hospitalet de Llobregat, Spain
3 MRI Unit, Hospital del Mar, Barcelona, Spain
4 MRI Unit, Barcelona, Spain; CIBERSAM, Barcelona, Spain
5 ISGlobal Centre for Research and Environment Epidemiology, CIBERSESP, Barcelona, Spain

**Background:** Subclinical obsessive-compulsive (OC) symptoms are frequent in healthy individuals and their presence at infancy may predict an adult diagnosis of obsessive-compulsive disorder (OCD). In this study we aimed to study the brain structural correlates of subclinical OC symptoms in healthy children.

**Methods:** Two hundred and fifty-five children (mean age = 9.7 ± 0.8 years, 49% females) were assessed with the Obsessive-Compulsive Inventory-Child Version (OCI-CV) and underwent a brain structural magnetic resonance imaging examination. Total severity and the scores on the different symptom domains (doubting/checking, hoarding, ordering, obsessional, washing and neutralizing) were correlated with regional gray and white matter volumes following a voxel-based morphometry protocol. Statistical significance was set at p < 0.05, corrected for multiple comparisons.

**Results:** Mean total score on the OCI-CV was 9.17 ± 4.18. Mean scores greater than 1 were observed in the doubting/checking (mean = 2.3 ± 1.5), hoarding (mean = 2.1 ± 1.3) ordering (mean = 2.3 ± 1.6) and obsessional (mean = 1.5 ± 1.4) dimensions. Total severity was associated with less gray and white matter in the left hippocampus, although at an uncorrected threshold. Doubting/checking symptoms correlated with less gray matter in the left middle frontal gyrus and more white matter in the right insula. Hoarding symptoms correlated with less gray and white matter in the left inferior frontal gyrus, and ordering symptoms correlated with less gray matter in the ventral caudate. Obsessing symptoms correlated with less white matter in the right temporal pole.

**Conclusions:** Subclinical dimension-specific OC symptoms are associated with distinct alterations in prefrontal, striatal and limbic/paralimbic areas. Such results may shed light on the neurobiological bases of clinical heterogeneity in OCD.

**Keywords:** Subclinical obsessive-compulsive symptoms; Symptom heterogeneity; Brain morphometry

**The Spanish version of constraint-induced aphasia therapy improves aphasia severity, discourse effectiveness, and visual attention: Evidence from a case of acquired childhood conduction aphasia**

Julia Vázquez De Sebastian1−, Isabel Leiva1, Carmen García-Sánchez2, Lourdes Janz3, María José Torres-Prioris4, Guadalupe Dávila4, Marcelo L. Berthier5

1 Institut de Recerca de l’Hospital de la Santa Creu i Sant Pau, Barcelona, Spain
2 Servei de Neurologia de l’Hospital de la Santa Creu i Sant Pau, Barcelona, Spain
3 Servei de Rehabilitació de l’Hospital de la Santa Creu i Sant Pau, Barcelona, Spain
4 Unidad de Neurologia Cognitiva y Afasia (UNCA), Centro de Investigaciones Médico-Sanitarias (CIMES), Cátedra ARPA de Afasia, IBIMA, Universidad de Málaga, Spain

**Introduction:** Evidence-based childhood aphasia (CA) treatments are strongly needed. REGIA-Plus (Rehabilitación
Grupal Intensiva de la Afasia-Plus) (Berthier et al., 2014), the Spanish version of Constraint-Induced Aphasia Therapy, has not been used in CA so far.

Objectives: To report beneficial effects of REGIA-Plus in an adolescent with chronic conduction aphasia.

Method: A 14-year-old right-handed boy become aphasic after the cerebral bleeding of an AVM in the left hemisphere that required decompressive craniotomy and radiosurgery. Multiple baseline evaluations (2month apart) in the chronic period 9 months post-onset and 1 post-treatment testing were performed. The patient received REGIA-Plus (30h/10 semi-consecutive days) complemented with a set of expressive and written naming home tasks. The Primary outcome measures were Aphasia Severity (Aphasia Quotient-Western Aphasia Battery; AQ-WAB), Discourse Effectiveness (Words per Minute – WpM, Content Information Units-per minute (CIUpM) and % CIU) and Visual attention (CalCAP T-Scores; SART version). Background cognitive assessment was also performed at baseline.

Results: Two weeks of REGIA-Plus induced significant benefits in comparison to baselines in AQ-WAB (baselines: 81.2 and 81.3; REGIA-Plus: 87.46), WpM (baselines: 69.76 and 69.47; REGIA-Plus: 84), CIUpM (baselines: 67.80 and 65.05; REGIA-Plus: 80.45) and CIU% (baselines: 65.47% and 70%; REGIA-Plus: 83.74%), and Visual Attention (SART-CalCAP Choice RT; baseline T-Scores: 15 and 19; REGIA-Plus T-Score: 35).

Conclusions: This preliminary evidence indicates that REGIA-Plus can be used to improve aphasia, discourse effectiveness, and visual attention in acquired CA.

Keywords: Acquired childhood aphasia; Treatment; Constraint-induced aphasia therapy; Spanish-speaking

References


Is the MoCA a more valid cognitive screening tool to detect Alzheimer’s disease and Mild Cognitive Impairment compared to the MMSE?: A bibliographic review

Silvia Valldeneu1,*, Amadeu Obach2, Ángel Priego2

1 Universitat Oberta de Catalunya, Màster en Neuropsicologia, Spain
2 Hospital Clínic de Barcelona, Spain

Introduction: MMSE is the most widely used cognitive screening tool but its applicability, specificity and sensitivity compared to MoCA has been recently discussed.

Objectives: To review the results of existing studies which compared MoCA and MMSE for the detection of mild cognitive impairment and Alzheimer’s disease.

Methods: PubMed database was searched using the keywords ‘’mmse, moca, Alzheimer’’ as a first screening. A second screening was made adding ‘’mild cognitive impairment’’ keyword to the previous list. A total of 40 articles were obtained, being only 17 able to analyse after applying the exclusion criterion (other languages than English, other systematic reviews or studies not focused on MCI-AD).

Results: Compared to the MMSE, most of these 17 articles analysed agree that the MoCA has psychometric superiority in detecting MCI-AD, AD-nonAD and, specially, HC-MCI. Thanks to the greater difficulty of some items, the incorporation of executive functions and the more complex measures in all neurocognitive aspects, it seems to be more sensitive to detect MCI and early AD. Highly variable cut-offs were reported for the MMSE and MoCA. There is a general agreement that MoCA is more sensitive, but at the recommended threshold MoCA favours sensitivity at the expense of specificity.

Conclusions: Compared to the MMSE, the MoCA is the most valid and clinically feasible screening tool to identify MCI. It allows a better prevision of the evolution, different levels of severity and determine MCI-AD subtypes. However, the optimal cut off score is open to debate and it would be convenient to do more investigation.

Keywords: Mini Mental State Examination (MMSE); Montreal Cognitive Assessment (MoCA); Alzheimer’s disease (AD); Mild Cognitive Impairment (MCI)

References


Neural correlates of moral sensitivity as an endophenotype in obsessive-compulsive disorder

Caterina Viver1,*, Marta Subirà1,2,3, Maria Picó-Pérez1,3, Pino Alonso1,2,3, Rosa Hernández-Ribas1,2,3, Cinto Segalàs1,2, Eva Real1,2, Jesus Pujo1,2,4, Ben Harrison5, Narcis Cardoner1,6,7, José Manuel Menchón1,2,3, Carles Soriano-Mas1,2,8

1 Department of Psychiatry, Bellvitge University Hospital-IDIBELL, Barcelona, Spain
2 Carlos III Health Institute, Centro de Investigación Biomédica en Red (CIBERSAM), Barcelona, Spain
3 Department of Clinical Sciences, School of Medicine, University of Barcelona, Barcelona, Spain
4 Magnetic Resonance Unit, CRC-Hospital del Mar, Barcelona, Spain
5 Department of Psychiatry & Melbourne Health, Melbourne Neuropsychiatric Centre, The University of Melbourne, Melbourne, Australia
6 Mental Health Department, Corporació Sanitària Parc Taulí, Sabadell, Spain
7 Department of Psychiatry and Forensic Medicine, Universitat Autònoma de Barcelona, Barcelona, Spain
8 Department of Psychobiology and Methodology in Health Sciences, Universitat Autònoma de Barcelona, Barcelona, Spain

Introduction: OCD patients show a high moral sensitivity, which could be conceptualized in the cognitive biases that underpin OCD symptoms (Salkovskis, 1985). Moral judgments are related with the hyperresponsibility feelings and the...
thought-action cognitive process, for which the mere occurrence of intrusions is perceived as the moral equivalent of deliberately acting on them (Rachman, 1997). The aim of this study was to compare the brain activation and connectivity maps obtained from a functional magnetic resonance study (fMRI) during a moral dilemma task between OCD patients, first-degree healthy relatives and healthy controls (HC).

Methods: 18 OCD patients, 19 first-degree healthy relatives and 19 HC were included in the study. The participants underwent an fMRI moral dilemma task and changes in BOLD signal were analyzed among the three groups. Analyses were focused on three predefined regions, previously related with this task in OCD (Harrison et al., 2012): the ventromedial prefrontal cortex (vmPFC), the dorsolateral prefrontal cortex (dlPFC) and the lateral temporal cortex. When significant differences in activation were found, we also performed psychophysiological interaction (PPI) analyses.

Results: OCD patients and healthy relatives showed a hyperactivation in the dlPFC in comparison to HC, while OCD patients alone showed a hyperactivation in the vmPFC. Regarding PPI analyses, OCD patients and healthy relatives showed a diminished vmPFC-neostriatum connectivity in comparison to HC, while OCD patients alone showed a diminished connectivity between the vmPFC and dopaminergic midbrain regions.

Conclusions: Results obtained from our study suggest the hyperactivation in the dlPFC during situations with high moral content as a candidate to an endophenotype in OCD.

Keywords: Moral sensitivity; OCD; Endophenotype; vmPFC; dlPFC

References


Additional effect of early neurocognitive rehabilitation on executive cognitive function in subacute stroke patients, in the context of intensive rehabilitation program

L. Costa¹; S. Fernandez-Gonzalo², N. Ridao³, D. Cánovas⁴, M. Jódar¹,⁴

¹ Clinical and Health Psychology Department, Universitat Autònoma de Barcelona (UAB), Bellaterra, Barcelona, Spain
² Research Department, Innovation and Investigation Institute Parc Taulí (I3PT), Universitary Institute, UAB, Sabadell, Barcelona, Spain
³ Rehabilitation Medicine Department, Parc Taulí Hospital, University Hospital-UAB, Sabadell, Barcelona, Spain
⁴ Neurology Department, Parc Taulí Hospital, University Hospital-UAB, Sabadell, Barcelona, Spain

Objective: To explore the additional effect of early neurocognitive rehabilitation on executive functions (EEFF), processing speed (SP) and functional status in subacute stroke patients included in an intensive rehabilitation program.

Subjects and methods: Sixteen subacute stroke patients included in an intensive 3-week intensive rehabilitation program were randomized into two groups. Both groups received intensive general rehabilitation, including physical, occupational and speech therapy. The training group additionally received neurocognitive rehabilitation during 50 min/day, 5 times/week. Neurocognitive rehabilitation was based on paper-pencil tasks and was carried out by a neuropsychologist during the 3 weeks. Phonetic fluency (FAS) was used to assess EEFF, Symbol Search WAI-SIV-subtest for SP and the Barthel index for functional status.

Results: A significant time effect was observed in all cognitive (FAS: F = 20.36; p < 0.001/Symbol Search: F = 8.78; p = 0.01) and functional (Barthel: F = 75.23; p < 0.001) measures. Moreover, a significant time by group effect (F = 6.54; p = 0.023) was observed in the FAS, favoring the training group. No other significant time by group effects were observed (Symbol Search: F = 1.59; p = 0.23/Barthel: F = 0.08; p = 0.78).

Conclusion: Neurocognitive rehabilitation may add a beneficial impact, due to the specific improvement of the executive functions, in subacute stroke patients that received an intensive rehabilitation therapy. Neurocognitive rehabilitation had no specific effect on the functional status of the participants. However, further studies should be carried out to explore the impact of early neurocognitive rehabilitation on other cognitive domains and its relationship with other functional and quality of life outcomes.

Keywords: Neurocognitive rehabilitation; Rehabilitation therapy; Stroke; Cognitive functions

References


### High-resolution neuromelanin sensitive magnetic resonance as an early marker in Alzheimer’s disease

I. Del Cerro1,*, I. Martinez-Zalacain1, G. Blasco2, A. Guineá3, J. Gascon-Bayarri4, R. René5, V. Soria1, J.M. Menchón1,4, C. Soriano-Mas1,5

1 Department of Psychiatry, Bellvitge University Hospital-IDIBELL, Barcelona, Spain
2 Department of Radiology, Girona Biomedical Research Institute, Diagnostic Imaging Institute, Girona, Spain
3 Unitat de Diagnòstic i Tractament de Demències, Servei de Neurologia, Hospital Universitari de Bellvitge, L’Hospital de Llobregat, Barcelona, Spain
4 Department of Clinical Sciences, Bellvitge Campus, Barcelona University, Barcelona, Catalonia, Spain
5 CIBER Salud Mental (CIBERsam), Instituto Salud Carlos III (ISCIII), Barcelona, Spain

**Introduction:** Alzheimer’s disease (AD) is the first cause of dementia and supposes a very incapacitating illness with a high prevalence in elderly. Nowadays, we have some diagnostic biomarkers that point to lesions, such neurofibrillary tangles, on brainstem regions in the early stages of the AD (Ferrer, 2012). Specifically, we focus on locus coeruleus (LC), which is a noradrenergic nucleus situated at the dorsal pons that exhibits extensive cortical and subcortical projections and...
has been implicated in modulation of attention (Aston-Jones & Cohen, 2005; Bouret & Sara, 2005).

**Objectives:** Studying selected patients at risk for developing AD with neuropsychological and neuroimaging techniques, focusing on involvement of LC and its connections.

**Methods:** Mild cognitive impairment, late-onset depression patients and healthy controls (n=30 per group) will be assessed through clinical, neuropsychological and neuroimaging techniques.

Neuroimaging protocol will include a high-resolution neuromelanin sensitive magnetic resonance. Neuromelanin is a pigment, present on LC and other nuclei, which allow examine the signal intensity of LC and identify and quantify its volume in early stages of the AD.

LC will be functionally assessed through pupil response and an oddball task, which will supply an arousal measure.

**Results:** It is an underway project, but we expect to find between-group differences on volume and function of LC.

**Conclusions:** Identifying LC dysfunction could be therefore considered an early marker of AD. Neuroimaging techniques could in this way be used as a helpful tool for prevention, enabling us an advance and more effective intervention in these patients.

**Keywords:** Neuromelanin, Alzheimer’s disease, neuroimaging, locus coeruleus

**Objectives:** The aim of this study is to define how often confabulations appear in episodic and semantic memory questions and to provide more empirical evidence in a group of mild Alzheimer’s dementia confabulators.

**Method:** Thirty-three subjects with mild Alzheimer’s dementia and 37 elderslies without dementia between 65 and 85 years old have participated in this study. We used the Spanish version of Dalla-Barba’s confabulation questionnaire and other neuropsychological tests. We divided the patients into two groups, which are “provoked confabulators” and “non-confabulators”, using a statistical criterion. Sixty-four percent of the patients were considered “provoked confabulators”.

**Results:** This group produces more confabulations in episodic memory questions than in semantic memory questions (Z de Wilcoxon = -3.60, p = .00), and 2.80 times more than “non-confabulators” group (U de Mann-Whitney = 14, p < .01). However, in the last group, no statistically significant differences were found between episodic memory questions and semantic memory questions (Z de Wilcoxon = 1.02, p = .31).

**Conclusions:** In conclusion, in mild Alzheimer’s dementia, provoked confabulators patients produce more confabulations in episodic memory questions that semantic memory questions. It seems that the confabulations are more specific to episodic memory. These results could invalidate some of the explanatory hypothesis of confabulation.

**Keywords:** Confabulation; Episodic and semantic memory; Dementia; Neuropsychological assessment

**References**


Alzheimer demented confabulators: More confabulations in episodic memory than in semantic memory

**A. Llorente**1,2, **C. Binschaelder**2, **A. Jarne**3

1 Benito Menni Psychiatric Hospital, Sant Boi de Llobregat, Spain

2 Neuropsychological and Neurorehabilitation Unit, Lausanne, Switzerland

3 Department of Personality, Barcelona University, Spain

**Introduction:** In classical view, confabulations are distortions of memory that appear when the subject is raised by specific questions that require retrieval of episodic or semantic memories. It is still controversial whether confabulation is specific of a type of information, thus it would appear more often in episodic memory questions that in semantic memory questions.

**Objectives:** Studying selected patients at risk for developing AD with neuropsychological and neuroimaging techniques, focusing on involvement of LC and its connections.

**Methods:** Mild cognitive impairment, late-onset depression patients and healthy controls (n=30 per group) will be assessed through clinical, neuropsychological and neuroimaging techniques.

Neuroimaging protocol will include a high-resolution neuromelanin sensitive magnetic resonance. Neuromelanin is a pigment, present on LC and other nuclei, which allow examine the signal intensity of LC and identify and quantify its volume in early stages of the AD.

LC will be functionally assessed through pupil response and an oddball task, which will supply an arousal measure.

**Results:** It is an underway project, but we expect to find between-group differences on volume and function of LC.

**Conclusions:** Identifying LC dysfunction could be therefore considered an early marker of AD. Neuroimaging techniques could in this way be used as a helpful tool for prevention, enabling us an advance and more effective intervention in these patients.

**Keywords:** Neuromelanin, Alzheimer’s disease, neuroimaging, locus coeruleus

**Objectives:** The aim of this study is to define how often confabulations appear in episodic and semantic memory questions and to provide more empirical evidence in a group of mild Alzheimer’s dementia confabulators.

**Method:** Thirty-three subjects with mild Alzheimer’s dementia and 37 elderslies without dementia between 65 and 85 years old have participated in this study. We used the Spanish version of Dalla-Barba’s confabulation questionnaire and other neuropsychological tests. We divided the patients into two groups, which are “provoked confabulators” and “non-confabulators”, using a statistical criterion. Sixty-four percent of the patients were considered “provoked confabulators”.

**Results:** This group produces more confabulations in episodic memory questions than in semantic memory questions (Z de Wilcoxon = -3.60, p = .00), and 2.80 times more than “non-confabulators” group (U de Mann-Whitney = 14, p < .01). However, in the last group, no statistically significant differences were found between episodic memory questions and semantic memory questions (Z de Wilcoxon = 1.02, p = .31).

**Conclusions:** In conclusion, in mild Alzheimer’s dementia, provoked confabulators patients produce more confabulations in episodic memory questions that semantic memory questions. It seems that the confabulations are more specific to episodic memory. These results could invalidate some of the explanatory hypothesis of confabulation.

**Keywords:** Confabulation; Episodic and semantic memory; Dementia; Neuropsychological assessment

**References**


**Exploring the neural bases of cognitive reserve in Huntington’s disease**


1 Fundació Sociosanitària de Barcelona, Hospital Duran i Reynals, Spain

2 Cognition and Brain Plasticity Unit, University of Barcelona, Spain
Scientific communications: 68th Conference of the Catalan Society of Neuropsychology 131

3 Cognition and Brain Plasticity Unit, IDIBELL (Institut d’Investigació Biomèdica de Bellvitge), Spain
4 Fundació Bosch i Gimpera, Spain
5 Hospital Universitari de Bellvitge, Servei de Neurologia, Unitat de trastorns del moviment, Spain
6 Hospital de la Santa Creu i Sant Pau, Movement Disorders Unit, Spain
7 IDIBAPS, Hospital Clinic, Spain
8 Hospital Mare de Deu de la Mercè, Spain
9 Hospital de Sant Joan Despí Moisés Broggi, Spain
10 ICREA, Universitat de Barcelona, Spain

Introduction: Although age at onset of Huntington’s disease (HD) is mainly determined by the size of the CAG repeat expansion, other factors may play a role. One potential factor is Cognitive Reserve (CR), as it has been shown in other neurodegenerative disorders and aging.

Objectives: The objective of this study is to investigate the effect of CR in age of onset in HD and to examine the neural bases underlying the individual differences in executive dysfunction (ED) that could be due to the effects of CR in HD.

Method: 31 HD patients completed a CR questionnaire and were scanned using functional magnetic resonance imaging. We analyzed the Resting State Executive Control Network (RS-ECN), a novel approach to study the brain areas underlying ED. The strength of connectivity within this network was calculated voxel-wise. The difference between the estimated and the real age of onset (26 symptomatic-HD) was calculated for each patient.

Results: High levels of CR significantly delayed the appearance of the clinical symptoms. Functional connectivity analysis showed that higher CR was associated with lower connectivity strength in the anterior cingulate cortex and with an increase of connectivity in the superior parietal cortex (SPC). Furthermore, higher strength of connectivity in the left SPC was related to better performance in cognitive flexibility (TMT (b-a)) and working memory (backward digits) tasks.

Conclusions: These findings provide converging evidence that CR might act as a protective mechanism for the progression of the disease in the RS-ECN by delaying the onset of symptoms and improving the performance in executive functions.

Keywords: Cognitive reserve; Huntington’s disease; Executive function; Individual differences

Decision making impairment: A shared vulnerability in obesity, gambling and substance use disorders?

Nuria Mallorqui-Bague1,2,7, Ana B. Fagundo1,2, Susana Jimenez-Murcia1,2,3, Rafael de la Torre2,4, Rosa M. Barrios2,5, Cristina Botella1,4, Felipe F. Casanueva2,7, Ana B. Crujeiras2,7, Jose C. Fernández-García1,9, Jose M. Fernández-Real1,9, Gema Frühbeck2,10, Roser Granero2,11, Amaia Rodríguez2,10, Francisco J. Ortega2,9, Francisco J. Tinahones1,3,8, Jose M. Menchón1,3,12, Fernando Fernández-Aranda1,2,3

1 Department of Psychiatry, University Hospital of Bellvitge-IDIBELL, Barcelona, Spain
2 CIBER Fisiopatología Obesidad y Nutrición (CIBEROBN), Instituto Salud Carlos III, Spain
3 Department of Clinical Sciences, School of Medicine, University of Barcelona, Barcelona, Spain
4 Human Pharmacology and Clinical Neurosciences Research Group, Neuroscience Research Program, IMIM (Hospital del Mar Medical Research Institute), Barcelona, Spain
5 Department of Psychological, Personality, Evaluation and Treatment of the University of Valencia, Spain
6 Department of Basic Psychology, Clinic and Psychobiology of the University Jaume I, Castelló, Spain
7 Endocrine Division, Complejo Hospitalario U. de Santiago, Santiago de Compostela University, Spain
8 Department of Endocrinology and Nutrition, Hospital Clínico Universitario Virgen de Victoria, Málaga, Spain
9 Department of Diabetes, Endocrinology and Nutrition, Institut d’Investigació Biomèdica de Girona (IdiBGi) Hospital Dr Josep Trueta, Girona, Spain
10 Department of Endocrinology and Nutrition, Clinica Universitat de Navarra, University of Navarra, Pamplona, Spain
11 Departament de Psicobiologia i Metodologia, Universitat Autònoma de Barcelona, Barcelona, Spain
12 CIBER Salud Mental (CIBERSam), Instituto Salud Carlos III, Spain

Introduction: Addictions and behavioural addictions have been associated with decision making impairments. The present study explores decision making profiles of Substance use disorder (SUD), Gambling Disorder (GD) and Obesity (OB) when assessed by the Iowa Gambling Test (IGT) and compares them with a healthy control group (HC).

Methods: For the aims of this study, 591 participants (51.7% females) that were distributed as follow 194 HD, 178 GD, 113 OB, 106 SUD were assessed according to DSM-V criteria, completed a sociodemographic interview and conducted the Iowa Gambling Task.

Results: SUD, GD and OB present impaired decision making when compared with the HC in both the overall task and learning across the task parameters, however no differences are found for the overall performance in the IGT among the clinical groups. Finally, results reveal some specific learning across the task patterns within the three clinical groups: OB individuals maintain negative scores until the third set were learning starts but with a less extend to healthy controls, SUD seems to present an early learning than OB followed by a progressive although slow improvement and GD presents more random choices displaying very few or no learning.

Conclusions: Decision making impairments are present in SUD, GD and OB. Some specific patterns of learning across the task are identified for each of the here studied clinical samples which to some extent show differences in learning patterns of decision making task. These results can help understanding the underlying mechanisms of obesity and addiction behaviors as well as improve current clinical treatments.

Keywords: Obesity; Gambling disorder; Substance use disorder; Addiction; Decision making
References


**Clinical and cognitive profiles in children with autism spectrum disorders: The experience of an specific educational center**

J. Miralbell1,2,* E. Pradell2, N. Farrés1, B. Alcàcer1, C. Castelló1, T. Vaimberg1, E. Arias-Pujo1,3, M. Mestres1

1 *Educative and therapeutic Center Carrilet S.C.C.L., Barcelona, Spain*
2 *Clinical Psychology and Psychobiology Department, University of Barcelona, Spain*
3 *Psychology Faculty Blanquerna, Ramon Llull University, Barcelona, Spain*

Introduction: Cognitive abilities in children with autism spectrum disorders (ASD) is one of the key factors related to school achievement, severity of clinical symptoms and adaptive level (Goldberg et al., 2006).

Objective: To investigate the clinical and medical profile of children with ASD according to their performance on cognitive tests.

Methods: 39 children with diagnosis of ASD attending C.E.E. Carrilet (Barcelona) were included. Cognitive performance was measured using both the WISC-IV or Wechsler non-verbal (WNV) scales based on children’s verbal abilities. Autism symptoms were assessed using the Autism Diagnostic Observation Schedule (ADOS-2). Medical comorbid pathologies and actual drug use were collected from their clinical history. Children were divided into groups based on the cognitive tests administrated and their clinical profiles were compared.

Results: Cognitive performance in children with ASD attending a specific educational center is heterogeneous, ranging from intellectual disability to talent. Three ASD profiles with different clinical characteristics were derived: (a) children assessed by WISC-IV: severe ASD symptoms, fluent language and no medical comorbidities nor medication; (b) children assessed with WNV: low-moderate ASD symptoms, no fluent language and no medical comorbidities; (c) children not assessed: moderate ASD symptoms, no language, and medical comorbidities and psychiatric medication.

Conclusion: Global and multi-disciplinary assessment in specific educational centers attending children with ASD is essential for planning individualized educative and therapeutic programs (Carrilet C.E.E, 2013; Viloca et al., 2012). Evaluations should include clinical, cognitive and medical aspects.

Keywords: Autism spectrum disorders; Cognitive assessment; Medical comorbidities; Clinical symptoms

References


Centre educatiu i terapèutic Carrilet. (2013). Comprisión y abordaje educativo y terapéutico del TEA. Barcelona: Hor sori Editorial.


---

**Enduring changes in neuropsychological functioning in anorexia nervosa patients in full remission**

Trevor Steward1,2, Gemma Mestre-Bach1,2, Zaida Agiara1,2, Roser Granero1,2, Isabel Sánchez-Diaz1,2, Nadine Riesco1,2, Susana Jiménez-Murcia1,2, Fernando Fernández-Aranda1,2,*

1 *Eating Disorders Unit, Department of Psychiatry, University Hospital Bellvitge-IDIBELL, Barcelona, Spain*
2 *CIBEROBN, Instituto Salud Carlos III, Barcelona, Spain*
3 *Departamento de Psicología y Metodología de las Ciencias de la Salud, Universitat Autònoma de Barcelona, Barcelona, Spain*

Introduction and objectives: Deficits in neuropsychological functioning have been repeatedly identified in patients with anorexia nervosa (AN). However, little is known on how cognitive functioning in AN patients evolves in response to treatment.

Method: AN patients (*n* = 42) completed a comprehensive set of neuropsychological (decision-making and selective attention) measures before admission (T0) to a 3-month day-hospital treatment program and at a 1-year follow-up (T1), and were compared to healthy controls (*n* = 52). BMI and eating disorder symptomatology were used as outcome variables.

Results: AN patients presented poorer performance on the Iowa Gambling Task (IGT) and the Stroop test at T0, compared to healthy controls (*p* < .001). AN patients in full remission (*n* = 31; 73.9%) at T1 significantly improved performance on the IGT (*p* = 0.019), and scores were not statistically different from HC scores (*p* > 0.05). Non-recovered patients and patients with partial remission (*n* = 11; 26.1%) did not improve IGT scores (*p* > 0.05). No changes were found in Stroop test scores in AN patients at T1 (*p* > 0.05).

Conclusions: AN patients in full remission showed marked improvements in decision making one year after beginning treatment, although significant impairments in other cognitive domains were still present.

Keywords: Neuropsychology; Eating and feeding disorders; Cognitive impairments; Longitudinal studies; Cognitive behavioral therapy; Choice behavior

Acknowledgment: Research partially supported by FIS PI14/00290.