

ies suggested that altered function of taste neural circuitry may contribute to restricted eating in AN.

Aims The aim of this study was to evaluate, in patients suffering from AN, the activation of brain areas involved in taste perception and in central reward mechanisms to both pleasant and aversive taste stimuli and to correlate gustatory neurocircuitry activity with eating behaviours, temperament measures and/or sensitivity to reward and to punishment.

Methods Fifteen underweight female AN patients and sixteen normal-weight healthy women underwent a functional MRI to measure brain areas activation to repeated stimuli of a pleasant taste (sucrose solution), alternated with an aversive taste (bitter solution), and water taste.

Results Compared to healthy controls, patients with AN showed a significantly reduced activation of left insula and left dorsolateral prefrontal cortex to sweet stimulus and reduced activation of right parietal cortex to bitter stimulus.

Conclusions These results, if confirmed in future studies, may improve our knowledge about the pathophysiological mechanisms of AN.

Disclosure of interest The authors have not supplied their declaration of competing interest.

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EW350

Implication of altered $\alpha 7$ nicotinic receptors and amyloid deposition in the Alzheimer's brain

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Introduction Brain amyloid- β protein (A β) deposition is a key pathology of Alzheimer's disease (AD). Cholinergic degeneration, including reductions in $\alpha 7$ nicotinic acetylcholine receptors ($\alpha 7$ -nAChR), is also known as a pathophysiology of AD. Recent imaging studies have shown cognitively normal subjects with A β depositions, indicating a missing link between A β deposition and cognitive decline.

Objectives To clarify relationships among the A β burden, $\alpha 7$ -nAChR availability, and cognitive declines in AD.

Aims To measure brain A β deposition and $\alpha 7$ -nAChR availability in the same patients with AD using positron emission tomography (PET).

Methods Twenty AD patients and age-matched 20 healthy adults were studied. The $\alpha 7$ -nAChR availability and A β deposition were evaluated using PET with [¹¹C]MeQAA and [¹¹C]PIB, respectively. Levels of specific binding were estimated by a simplified reference tissue method (BP_{ND}) for [¹¹C]MeQAA and a tissue ratio method (SUVR) for using [¹¹C]PIB. The values were compared with clinical measures of various cognitive functions using regions of interest (ROIs)-based and statistical parametric mapping (SPM) analyses.

Results [¹¹C]MeQAA BP_{ND} levels were extensively lower in the cholinergic projection regions of AD. There was a significant negative correlation between [¹¹C]PIB SUVR and [¹¹C]MeQAA BP_{ND} in the nucleus basalis of Meynert (NBM). The NBM [¹¹C]PIB SUVR was negatively correlated with the [¹¹C]MeQAA BP_{ND} level in the anterior and posterior cingulate cortices, whereas the relation within the same region showed weak correlation. Also we found signifi-

cant correlation between cognitive decline and [¹¹C]MeQAA BP_{ND} levels in the NBM.

Conclusions A β deposition-linked $\alpha 7$ -nAChR dysfunction may account for cognitive decline in AD.

Disclosure of interest The authors have not supplied their declaration of competing interest.

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3-dimensional evaluation of lateral ventricle volumes of schizophrenia patients and investigation of the subgroups

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Introduction The thought of greater loss of brain tissue in Deficit Syndrome (DS) i.e. subgroup of schizophrenia with enduring primary negative symptoms defined by Carpenter et al.; this has not been verified by recent studies.

Objective Accumulated researches suggest that enlargement in Lateral Ventricles (LV) is related with current negative symptoms and poor prognosis. However, this has not been validated in DS.

Aims Our aim is to study the association between the enduring negative symptoms and LV changes schizophrenia. We included both deficit and non-deficit patients for comparison with controls.

Methods Forty-five patients (18 DS, 27 non-DS) and 37 healthy controls were recruited, evaluated for positive and negative symptoms, depression and extrapyramidal symptoms. Structural magnetic resonance imaging was performed. LV was assessed by MANCOVA (gender, age total brain volume as confounding factors) in 3-dimensional (3D) shape analyses. Correlations between clinical and imaging data were analyzed by Pearson correlation coefficient; $P > 0.05$ being significant.

Results LV of patients was found to be greater than controls, especially in regions adjacent to parietal and temporal regions but no significant difference between subgroups was detected. Enlargement in right LV by corpus callosum adjacency was found in DS. There was no correlation between negative symptoms and LV volume.

Conclusions The idea of greater amount of LV enlargement in patients with predominant negative symptoms could not be observed in 3D analyses. New pathophysiological theories are needed for the explanation of negative symptoms, loss of functioning and poor prognosis rather than only commenting about tissue decrease/loss.

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Schizophrenia and dementia. Morphological and spectroscopic findings. Baseline data

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Introduction Spectroscopy is a diagnostic method using MRI, to analysis tissue in vivo noninvasively. There are several studies with magnetic resonance spectroscopy (MRS) in patients with psychiatric disorders, especially schizophrenia and Alzheimer's type dementia, in their different developmental stage. Sometimes spectroscopy may allow brain metabolic changes to be observed before the onset of alterations in brain parenchyma. We do not know any documented case of spectroscopy performed on a psychiatry-targeted manner on our hospital. It is a noninvasive technique without added cost to the MRI and is available in our hospital. It seems interesting for us to combine two specialties like radiology and psychiatry in the field of a neuroimaging Project.

Objectives and aims Our goal is try to establish a radiological anatomical correlate to brain molecular levels. It's a transverse and longitudinal prospective observational study in which subjects will be submitted to various psychiatric assessments by conducting a radiological examination that is the MRI and MRS to determine the regional metabolic pattern in the subjects explored.

Methods Informed consent to all patients, aged more than 18 years, selected according inclusion/exclusion criteria that meet ethical principles. Patients are selected within the public health network of Sacyl Health Care System, Zamora Hospital, Spain.

Expected results and conclusions Schizophrenia increased creatinine, choline and glutamate. NAA decrease in untreated patients and increased the same in patients with treatment Alzheimer: < increased NAA (N-acetyl aspartate) and increased MI (myo-inositol), their relationship has a high negative predictive value, ie if it is negative (the peaks are not increased) is discarded Alzheimer's disease. Early Dx/screening? Treatment?

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EW354

Gender differences in neural activation during perceptual uncertainty in patients with major depression

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Introduction Although male and female patients with major depression (MDD) differ in psychopathology and other illness characteristics, a potentially confounding effect of gender has not been systematically controlled or investigated in most of the previous neuroimaging studies.

Objectives We investigated activation patterns during processing of ambiguous stimuli in MDD by functional MRI.

Aims We aimed at examining potential activation differences between male and female patients.

Methods A matching task was employed in which two stimuli with varying degrees of perceptual uncertainty had to be compared with respect to their sameness. Eighteen patients meeting DSM-IV criteria of MDD and eighteen healthy control subjects participated in this study.

Results Whereas on the level of behavioral performance no significant group differences could be detected we found distinct disorder- and gender-related differences in the brain activation.

Patients activated significantly stronger in superior parietal, prefrontal and cingulate regions. Gender specific analyses revealed that the hyperactivity in the patient group was mainly attributable to hyperactivity in the male patients who activated significantly stronger than the female patients in an extensive fronto-temporo- limbic network, which partly overlapped with the network we found when comparing patients and healthy controls.

Discussion Our results indicate that male patients seem to be reliant on a significantly stronger metabolism in task-relevant regions to maintain an equal level of performance.

Conclusion The present results provide evidence for gender-related differences in the functional organization of the brain in patients with MDD. Gender differences should be taken into consideration when investigating the neural correlates of MDD.

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Searching for meaning in meaningless gestures, pathologic activity in amygdala, hippocampus and temporal pole during planning of gestures in schizophrenia

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Introduction Schizophrenia is characterized by poor social interaction contributing to poor functional outcome. Particularly nonverbal communication is disturbed. Neural correlates of impaired gesturing are currently unclear. We thus tested functional correlates of gesturing in schizophrenia patients and healthy controls.

Methods We tested 22 patients and 25 controls with an event-related fMRI (instructed delay) paradigm to dissociate brain activation during planning and execution of meaningful (e.g. use scissors) and meaningless novel gestures. Preprocessing included realignment, coregistration, normalization and spatial smoothing. We used a two stage mixed effects model for statistical analysis. Conditions were contrasted against a linguistic control within and between groups. We correlated psychopathological characteristics with beta estimates of brain areas with between group effects.

Results During planning and execution of both gesture subtypes both groups activated brain areas of the ventral and dorsal stream. However patients' activity was less prominent and more left lateralized. During planning patients showed additional activity in bilateral temporal poles, amygdala and hippocampus associated with the level of delusions. Furthermore patients had increased dorsomedial prefrontal cortex and precuneus activity when planning meaningless gestures.

Conclusion During the planning of meaningless gestures we detected aberrant activation of limbic structures in patients typically implicated in delusion formation, which also correlated with current severity of delusions. Moreover, planning of meaningless gestures relied on areas relevant for strategic control and attention. These results argue for a pathologic search for meaning in