

Poster presentation

The involvement of cingulate cortex in Bipolar disorder: a systematic review of existing data

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from International Society on Brain and Behaviour: 3rd International Congress on Brain and Behaviour
Thessaloniki, Greece. 28 November – 2 December 2007

Published: 17 April 2008

Annals of General Psychiatry 2008, **7**(Suppl 1):S284 doi:10.1186/1744-859X-7-S1-S284

This abstract is available from: <http://www.annals-general-psychiatry.com/content/7/S1/S284>

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Background

Bipolar disorder (BD) is a complex and chronic mental disorder and synthesis of different theoretical frameworks and empirical data concerning its etiopathology, is difficult. Most models include among other structures the anterior cingulate cortex (ACC). The current paper is a review of the literature on the involvement of the cingulate cortex (CC) in the development and course of BD.

Materials and methods

The MEDLINE was searched with the combination of the words 'cingulate' with 'bipolar' and 'manic', 'manic depression', 'manic-depression', and 'manic-depressive'.

The search returned 161 articles updated through June 2007. The inspection of the abstracts, and where necessary the assessment of the full paper, selected 83 as relevant and within the scope of the current study. These 84 papers were classified into two broad categories, those that included neuroimaging and those that concerned neuropathological data. Neuroimaging studies were divided into those reporting structural and volumetric changes (N=24), changes in the resting state activity (N=7), receptor and neurochemical imaging (N=5), activity changes after challenge tests (N=16) and activity changes after therapeutic intervention (N=7). Neuropathological studies were further subdivided into those reporting volumetric (N=2) and those reporting histopathological data (N=26).

Results

The results suggest that there is a state-dependent change in the metabolism of the ACC as well as a reduction of volume concerning both the grey and the white matter. Challenge and activation tests suggest the presence of an abnormal pattern of activation including a reduced or increased activation depending on the state and the condition. Therapeutic intervention seems to reverse some but not all of the deficits observed.

Conclusions

A final synthesis of the findings into an overall model of anatomic and functional disruption is difficult. There is a large methodological variation among studies and many limitations.