Pronounced prefronto-temporal cortical thinning in schizophrenia: Neuroanatomical correlate of suicidal behavior?

Abstract:
Schizophrenia is characterized by increased mortality for which suicidality is the decisive factor. An analysis of cortical thickness and folding to further elucidate neuroanatomical correlates of suicidality in schizophrenia has not yet been performed. We searched for relevant brain regions with such differences between patients with suicide-attempts, patients without any suicidal thoughts and healthy controls. 37 schizophrenia patients (14 suicide-attempters and 23 non-suicidal) and 50 age- and gender-matched healthy controls were included. Suicidality was documented through clinical interview and chart review. All participants underwent T1-weighted MRI scans. Whole brain node-by-node cortical thickness and folding were estimated (FreeSurfer Software) and compared. Additionally a three group comparison for prefrontal regions-of-interest was performed in SPSS using a multifactorial GLM. Compared with the healthy controls patients showed a typical pattern of cortical thinning in prefronto-temporal regions and altered cortical folding in the right medial temporal cortex. Patients with suicidal behavior compared with non-suicidal patients demonstrated pronounced (p<0.05) cortical thinning in the right DLPFC and the superior temporal cortex. Comparing cortical thickness in
suicidal patients with non-suicidal patients significant (p<0.05) cortical thinning was additionally found in the right superior and middle temporal, temporopolar and insular cortex. Our findings extend the evidence for neuroanatomical underpinnings of suicidal behaviour in schizophrenia. We identified cortical thinning in a network strongly involved in regulation of impulsivity, emotions and planning of behaviour in suicide attempters, which might lead to neuronal dysregulation in this network and consequently to a higher risk of suicidal behavior.