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Altered functional activation in verbal fluency linked to auditory verbal hallucinations

Katharina Kunzelmann, Matthias Grieder and Thomas Dierks
University Hospital of Psychiatry and Psychotherapy, Switzerland

Auditory verbal hallucinations are a common symptom in schizophrenia. Other symptoms comprise of deficits in the domains of cognition, emotion and language. In the language domain, patients with schizophrenia often show deficits in tasks investigating verbal fluency. It is still unclear, however, if this deficit is symptom-specific or a general exacerbation in schizophrenia. The association of verbal fluency deficits and the symptom of auditory verbal hallucinations is interesting in particular, as both processes engage brain areas associated with language processing. The current study investigated this relationship in 31 participants in three groups of subjects: patients with schizophrenia and hallucinations (AH), patients with schizophrenia without hallucinations (NH), and healthy controls (C). All subjects performed a verbal fluency task while measuring functional activation by a blood-oxygen-level-dependent (BOLD) magnetic resonance imaging (MRI) procedure. Task-dependent activation was compared between the three groups. All three groups showed activation in language areas (Broca's in inferior frontal gyrus and Wernicke's in inferior parietal lobule) bilaterally. However, activation patterns differed for patient groups when compared to healthy controls. Furthermore, there was unexpectedly more activation for NH compared to AH in bilateral fusiform gyrus. NH but not AH seem to engage fusiform gyri as an additional strategy to compensate for functional deficits. In contrast to literature, patients with auditory verbal hallucinations show different functional activation patterns in language processing. Further investigations of the particular relationship between the two processes is required.

Biography

Katharina Kunzelmann has completed her Master's in Psychology in 2013 at Eberhard-Karls-University in Tübingen, Germany. In 2014, she joined the research group of Thomas Dierks and is currently working on her PhD degree in Neurosciences at University Hospital of Psychiatry and Psychotherapy in Bern, Switzerland. Her scientific interests lie in auditory verbal hallucinations in schizophrenia, inner language, brain stimulation methods (tDCS and TMS), and the neuronal correlates of all of these processes investigated by neuroimaging methods (MRI, EEG).

katharina.kunzelmann@puk.unibe.ch

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