

## S31-01 - CORTEX GYRIFICATION AND AUDITORY HALLUCINATIONS IN SCHIZOPHRENIA

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**Introduction:** One century ago, Elmer Southard investigated developmental brain lesions in schizophrenia from the analysis of cortex macroscopic anatomy. So far, a number of epidemiologic, genetic, and brain imaging studies have further supported the hypothesis that abnormal brain development could be a risk factor for schizophrenia. However, the mechanisms underlying its symptomatological expression are still debated, in particular for the auditory verbal hallucinations (AVH).

**Objectives and aims:** Brain imaging studies in schizophrenia patients with AVH have reported both functional and anatomical deviations in language-related cortical regions but it is still unclear whether these deviations relate to neurodevelopmental impairments. We investigated the cortex gyrification in schizophrenia patients with AVH as gyrification can be considered an indirect marker of gyration and sulcation, namely the development of gyri and sulci.

**Methods and results:** Using recent sophisticated computer-based morphometry methods, we detected abnormal gyrification in the language-related cortex in schizophrenia patients with persistent AVH. In addition, in comparison to healthy subjects, opposite displacements of the junction between the superior temporal sulcus and its anterior branch were found in patients with AVH heard inside the head in comparison to patients with AVH heard outside the head.

**Conclusions:** Such sulcal abnormalities support a neurodevelopmental component to AVH in schizophrenia. Furthermore, the “sulcal dysjunction” suggests impairments during early brain maturation, when the STS and its anterior branch appear and merge. Recent results on the genetic, neurochemical and biomechanical processes involved on the cortex gyrification will provide new insight into the pathophysiology of AVH in schizophrenia.