
RSNA Press Release

Hallucinations in Schizophrenia Linked to Brain Area that Processes Voices

Released: July 31, 2007

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OAK BROOK, Ill. - For the first time, researchers using magnetic resonance imaging (MRI) have found both structural and functional abnormalities in specific brain regions of schizophrenic patients who experience chronic auditory hallucinations, according to a study published in the August issue of *Radiology*.

"The results showed abnormalities in specific areas of the brain associated with the capacity to process human voices," said lead author, Luis Martí-Bonmatí, M.D., Ph.D., chief of magnetic resonance in the Department of Radiology at Dr. Peset University Hospital in Valencia, Spain.

Schizophrenia is a chronic, severe and disabling brain disorder that affects approximately 1 percent of the global population, according to the National Institute of Mental Health. People with schizophrenia often experience hallucinations, delusional thoughts, paranoia, disorganized thinking and other cognitive difficulties. Although the cause of schizophrenia has not been determined, it is believed to result from a combination of environmental and genetic factors. The condition is treatable, but there is no cure.

"Developing a clear understanding of the pathological abnormalities associated with schizophrenia is one of the greatest challenges in psychiatry," Dr. Martí-Bonmatí said. "Using MRI to mark brain regions that are affected in both structure and function will help pinpoint specific abnormalities associated with the disease and ultimately enable more effective treatment."

The researchers studied 31 right-handed men, 21 with schizophrenia who suffered from persistent auditory hallucinations and 10 healthy controls. Morphological MR images were acquired to show abnormalities in brain structure while functional MRI was used to gauge brain response to various emotional and neutral stimuli.

At A Glance

- MRI shows functional and structural abnormalities in the brains of schizophrenic patients who experience chronic hallucinations.
- The abnormalities are found in areas of the brain that process emotion and human voices.
- Schizophrenia is a chronic, disabling brain disorder that affects 1 percent of the world's population.

Among the schizophrenic patients, the results showed functional abnormalities and corresponding gray matter deficits in several brain regions associated with regulating emotion and processing human voices.

"We hope that by evaluating combined structural and functional abnormalities in the brains of these patients, we may uncover biological markers to find candidates for specific treatments and better monitor patient response to those treatments," Dr. Martí-Bonmatí said.

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Journal attribution required.

Radiology is a monthly scientific journal devoted to clinical radiology and allied sciences. The journal is edited by Anthony V. Proto, M.D., School of Medicine, Virginia Commonwealth University, Richmond, Va. *Radiology* is owned and published by the Radiological Society of North America, Inc. (radiology.rsna.org)

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"Chronic Auditory Hallucinations in Schizophrenic Patients: MR Analysis of the Coincidence between Functional and Morphologic Abnormalities." Collaborating on this paper with Dr. Martí-Bonmatí were Juan José Lull, MSc., Gracián García-Martí, MSc., Eduardo J. Aguilar, M.D., David Moratal-Pérez, Ph.D., Cecilio Poyatos, M.D., Montserrat Robles, PhD., and Julio Sanjuán, M.D., Ph.D.