

Antipsychotics for schizophrenia associated with subtle loss in brain volume

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Patients with schizophrenia who take antipsychotic medications appear to lose a small but measurable amount of brain tissue over time, according to a report in the February issue of *Archives of General Psychiatry*.

Schizophrenia affects 1 percent of the worldwide population and remains a leading cause of chronic disability among young adults, according to background information in the article. Progressive changes in brain volume observed in patients with schizophrenia have been thought to be an effect of the disease. "However, recent animal studies indicate that antipsychotics, the mainstay of treatment for schizophrenia patients, may also contribute to brain tissue volume decrement," the authors write. "Because antipsychotics are prescribed for long periods for schizophrenia patients and have increasingly widespread use in other [psychiatric disorders](#), it is imperative to determine their long-term effects on the human brain."

Beng-Choon Ho, M.R.C.Psych., and colleagues at University of Iowa Carver College of Medicine, Iowa City, studied 211 patients with schizophrenia who underwent repeated neuroimaging beginning soon after their illness. Each patient had an average of three [magnetic resonance imaging](#) (MRI) scans over 7.2 years, for a total of 674 scans. The authors then assessed the relative contributions of four predictors—illness duration, antipsychotic treatment, illness severity and substance abuse—on changes in brain volume over time.

Patients who were followed for longer periods of time experienced more reductions in brain volume. Antipsychotic treatment was also associated with brain tissue reduction after controlling for the other three predictors. More intense antipsychotic treatment was associated with overall measures of brain tissue loss, smaller gray matter volume and progressive declines in white matter volume.

The other two variables, illness severity and substance abuse, had no or minimal association with brain changes after the effects of illness duration and antipsychotic treatment were considered.

"Findings from the present study raise several clinical questions. Are antipsychotic-associated gray matter and white matter volume reductions 'bad' for patients?" the authors write. Although they are assumed to be undesirable, the benefits of long-term treatment may outweigh the risks, they note. "However, our findings point toward the importance of prescribing the lowest doses necessary to control symptoms."

In addition, the results raise concerns about the use of antipsychotics for people who do not have schizophrenia, including children, older adults and patients with bipolar or depressive disorders.

"Antipsychotics are effective medications for reducing some of the target clinical symptoms of schizophrenia: psychotic symptoms. In medicine we are aware of many instances in which improving target symptoms worsens other symptoms," the authors conclude. "It is possible that, although antipsychotics relieve psychosis and its attendant suffering, these drugs may not arrest the pathophysiologic processes underlying [schizophrenia](#) and may even aggravate progressive [brain tissue](#) volume reductions."

More information: *Arch Gen Psychiatry*. 2011;68[2]:128-137.

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