REUTERS

Brain development found to be slower in children with ADHD

Mon Nov 12, 2007 5:43pm EST

By Julie Steenhuysen

CHICAGO (Reuters) - Children and teenagers with attention deficit hyperactivity disorder have developmental delays of up to three years in some regions of the brain, U.S. researchers said on Monday.

"The sequence in which different parts of the brain matured in the kids with ADHD was exactly the same as in healthy kids. It's just that everything was delayed by a couple of years," said Dr. Philip Shaw National Institutes of Health's National Institute of Mental Health.

Shaw said the delays are most pronounced in regions of the brain that are important for controlling thought, attention and planning.

ADHD is a condition suffered by about 2 million U.S. children that often becomes apparent in preschool and early school years. Children with ADHD have a tougher time controlling their behavior and paying attention.

Shaw said the study helps settle the question of whether the brain develops differently in children with ADHD or is just delayed. "This is very much in favor of a delay," said Shaw, whose study appears in the Proceedings of the National Academy of Science.

The finding was based on imaging studies involving 223 children and teens with ADHD and 223 without the disorder.

Researchers used magnetic resonance imaging, or MRI, scans to look at the brain structure at various ages, measuring the thickness of the developing cortex, a key area for attention and impulse control.

While prior imaging studies have mostly relied on measuring the four lobes of the brain, Shaw and colleagues used a new technique that enabled them to measure the thickness of brain tissue in 40,000 different sites in the cortex.

They focused on the age at which cortex thickening peaks during childhood, then starts to thin after puberty as unused neural connections are pruned.

They found that in children with ADHD, the cortex reached peak thickness at an average age of 10.5, compared with age 7.5 in normal children.

"The delay was carried forward into adolescence," Shaw said in a telephone interview.

He said the study was not able to answer the question of why some kids grow out of ADHD, nor does it address any questions about the benefits of treating children.

"What I wouldn't take away from this study is: 'Just sit and wait three years and your kid will be OK,'" Shaw said.

"We know ADHD is a real problem for children and their families and the schools, and it does need treatment," he said.

Treatment often includes drugs like Ritalin, or methylphenidate, a stimulant intended to lower impulsiveness and hyperactivity and boost attention. It also may include behavioral strategies to help children and their families manage the disorder.

A study published in September found that fewer than half of U.S. children who meet diagnostic criteria for ADHD receive treatment.

(Reporting by Julie Steenhuysen, editing by Will Dunham and Stuart Grudgings)