

Deficits in brain's 'executive' skills common with TIA, minor stroke

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Nearly four in 10 transient ischemic attack (TIA) and minor ischemic stroke patients may experience mental impairment, according to a study presented at the American Stroke Association's International Stroke Conference 2010.

Researchers evaluated 140 patients (average age 67) admitted to the Urgent TIA Clinic at the London Health Sciences Centre in London, Ontario. Within a week of symptom onset, the researchers used a short, easily administered battery of tests that can detect deficits in so-called "executive functions," including speed of mental processing, abstraction and reasoning ability. They found that these functions — higher-level cognitive skills that control and coordinate other mental abilities and behaviors — were impaired in almost 40 percent of the TIA and [minor stroke](#) patients.

Researchers have known that TIAs and minor strokes can subtly change mental abilities, a condition known as vascular cognitive impairment. But little has been known about how common impairment was in these patients.

"Transient ischemic attacks and minor strokes are not just a warning of future stroke. They are an indication that the process of brain injury may have begun," said Michael Harnadek, Ph.D., the study's lead author and a neuropsychologist with the London Health Sciences Centre.

Researchers also administered the most commonly used test for mental

functioning, the Mini Mental Status Exam, which is designed to identify patients with Alzheimer's dementia. They found that test couldn't detect the cognitive problems in minor stroke and TIA patients. Harnadek said this indicates while cognitive impairment is common in patients who have experienced TIAs and minor strokes, it can be missed if doctors rely only on measures designed to test for Alzheimer's dementia.

"Using measures that specifically test executive functioning, screening for [cognitive impairment](#) can be done quickly and easily," he said.

Ischemic events — caused by a blockage in a blood vessel in or leading to the brain — account for about 85 percent of all strokes. About one-third of people who have a TIA, also known as a "warning stroke," have a stroke within a year, according to the American Stroke Association.

In a May 2009 statement, the American Heart Association/American Stroke Association re-defined TIA as a transient episode of neurological dysfunction caused by focal brain (an injury confined to one area of the brain), spinal cord or retinal ischemia without acute infarction.

Infarction is tissue death, currently the main distinction between TIA and stroke, and can be determined by magnetic resonance imaging (MRI).

Symptoms of a TIA and stroke are the same and include sudden onset of any of the following:

- Numbness or weakness of the face, arm or leg, especially on one side of the body
- Confusion, or trouble talking or understanding
- Vision problems

- Difficulty walking, dizziness, or loss of balance or coordination
- Severe headache with no known cause

Among the patients in the study who experienced a TIA, symptoms went away within 24 hours, while for the minor [stroke](#) patients, physical or sensory symptoms persisted but didn't cause serious disability.

Sixty-one percent of the study subjects were women, but the researchers haven't yet determined whether rates of impairment varied between males and females. The study also didn't include enough patients to discern differences among racial or ethnic groups, Harnadek said.

The study should be replicated elsewhere to see whether rates of impairment are similar for the same type of patients, he said. Researchers should also try to learn whether patients' impairment interferes with their ability to understand and follow the treatment guidance their physician provides.

"Our research, and similar studies, underscores the need for the prevention of cerebrovascular disease, as well as early detection and treatment in those affected, to preserve cognitive health," Harnadek said.

Provided by American Heart Association

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