Physical and Psychological Factors Affect Cognitive Function After Ischemic Strokes

An estimated 65% of ischemic stroke survivors experience cognitive impairment and decline. However, little is known about the varying roles of cognitive risk and protective factors before, during, and after stroke. To address this gap in knowledge, scientists examined changes in cognitive function surrounding ischemic stroke in older women over an 8-year period. The retrospective study, published in Aging, Neuropsychology, and Cognition, analyzed data from 159 participants ages 65 to 79.

Cognitive function was examined in three phases: (a) 3 years prior to ischemic stroke, (b) at the time of ischemic stroke, and (c) up to 3 years after ischemic stroke. At each of these phases, the researchers examined how women’s characteristics were related to cognitive functions, such as memory, attention, and verbal fluency.

The team found that a higher body mass index, presence of hypertension, lower optimism, and higher physical function were all associated with significantly greater decreases in cognitive function at the time of stroke. However, after ischemic stroke, there was significantly less cognitive decline in women with the same characteristics.

Based on these findings, interventions could be designed to target modifiable risk and protective factors, and to identify individuals likely to receive the greatest benefit. Further research is needed on the role of psychological factors (e.g., optimism, depression) in cognitive decline after stroke, especially in older women, to develop better psychosocial interventions.


Low Memory Test Scores May Predict Alzheimer’s Disease Earlier

A new study in Neurology suggests that errors on memory and thinking tests may signal Alzheimer’s disease up to 18 years before it can be diagnosed. For the study, 2,125 European American and African American individuals from Chicago with an average age of 73 and without Alzheimer’s disease were given tests of memory and thinking skills every 3 years for 18 years.

Twenty-three percent of African Americans and 17% of European Americans developed Alzheimer’s disease during the study. Individuals who scored lower overall on the memory and thinking tests had an increased risk of developing the disease. During the first year of the study, individuals with lower test scores were approximately 10 times more likely to be diagnosed with Alzheimer’s disease than those with higher scores, with the odds increasing by 10 for every standard deviation that the score was lower than the average.

Based on tests completed 13 to 18 years before the final assessments, one unit lower in performance of the standardized cognitive test score was associated with an 85% greater risk of future dementia.


New Study Shows Inflammation Plays a Role in the Onset of Delirium

Delirium is an acute state of confusion that often affects older adults following surgery or serious illness. Now a study published in the Journals of Gerontology, Series A: Biological Sciences and Medical
Sciences confirms that inflammation (i.e., an immune response that develops when the body attempts to protect itself from harmful stimuli) plays a role in the onset of delirium.

Researchers examined data from a patient cohort that followed 566 noncardiac surgical patients older than 70 for the past 5 years with the goal of finding new approaches to prevent delirium and its long-term consequences in older adults.

The researchers used a three-stage approach to examine the association between inflammatory cytokines and delirium. They first created what they called a discovery cohort from a dataset of the first 272 participants, in which the matching procedure identified 39 matched pairs of delirium cases and no-delirium controls. Second, they considered the remaining study sample to identify 36 matched pairs of cases and controls, called the replication cohort. Third, they combined these two cohorts to create the pooled cohort, which contained 75 matched pairs.

The researchers then measured cytokines in blood samples taken prior to surgery to establish a baseline figure. Additional measurements were then taken at three separate time points. Older patients with delirium had significantly elevated levels of the inflammatory marker interleukin-6 2 days after surgery; elevated levels of interleukin-2 were also identified in delirious patients. Together, these findings may help clinicians identify patients at greatest risk of developing delirium and aid in the treatment of this condition.


Changes in Biomarkers May Predict Dementia

By studying brain scans and cerebrospinal fluid of healthy adults, scientists have shown that...
changes in key biomarkers of Alzheimer’s disease during midlife may help identify individuals who will develop dementia years later, according to a study published in *JAMA Neurology*.

The study focused on data gathered over 10 years and involved 169 cognitively normal research participants ages 45 to 75. Each participant received a complete clinical, cognitive imaging, and cerebrospinal fluid biomarker analysis every 3 years, with a minimum of two evaluations. At the initial assessments, researchers divided participants into three age groups: early-middle age (45 to 54 years); mid-middle age (55 to 64 years); and late-middle age (65 to 74 years).

The scientists found that drops in amyloid beta 42 levels in the cerebrospinal fluid among cognitively normal participants (ages 45 to 54) are linked to the appearance of plaques in brain scans years later. Researchers also found that tau and other biomarkers of brain-cell injury increase sharply in some individuals as they reach their mid-50s to mid-70s, and YKL-40 rises throughout the age groups. Previous research has shown that these biomarkers may be affected by Alzheimer’s disease, but this is the first large data set to show that the biomarkers change over time in middle-aged individuals. Scientists have been following participants with and without a family history of the disease, with the aim of identifying Alzheimer’s biomarkers most closely associated with the development of full-blown disease years later.


doi:10.3928/00989134-20150814-44