無症状の動脈硬化は認知機能障害と関連がある（Abstract SSA15-01）

MRIおよびCT画像は将来の認知機能障害のリスクに関する価値ある予後情報を提供する
MRI and CT imaging provide valuable prognostic information about risk for future cognitive impairment

体の主要動脈へのプラーク蓄積は軽度認知障害と関連があった、との研究結果が2014年Radiological Society of North America年次集会で発表された。研究者らは、心血管疾患症状を有さない参加者1,903人（平均年齢44歳）の検査結果を解析した。スタディの参加者らはモントリオール認知評価検査（MoCA）を受け、脳の磁気共鳴画像検査（MRI）で白質の高信号体積を評価された。彼らはまた、MRIにより頸動脈および腹部大動脈の壁厚を計測されコンピュータ断層検査（CT）で冠動脈石灰化を計測された。統計的回帰モデルを用いて動脈硬化の発生と軽度認知機能障害を関連付けたところ、体内の3つの全ての血管領域の動脈硬化と認知面での健康との独立した相関が認められた。内頸動脈壁厚四分位で最大であった者は、MoCA低値で評価した認知機能障害を有する確率が21%高かった。冠動脈石灰化スコアが高値であることはMRI上、白質の高信号体積が大きいことの予測因子であった。MRIとCTの画像技術により、個人のダウンストリーム健康リスクに関する貴重な予後の情報が得られると筆者らは示唆している。

Full Text

In a study of nearly 2,000 adults, researchers found that a buildup of plaque in the body's major arteries was associated with mild cognitive impairment. Results of the study conducted at the University of Texas (UT) Southwestern Medical Center were presented at the 2014 annual meeting of the Radiological Society of North America (RSNA).

"It is well established that plaque buildup in the arteries is a predictor of heart disease, but the relationship between atherosclerosis and brain health is less clear," said Christopher D. Maroules, M.D., radiology resident at UT Southwestern Medical Center in Dallas. "Our findings suggest that atherosclerosis not only affects the heart but also brain health."

In the study, researchers analyzed the test results of 1,903 participants (mean age, 44 years) in the Dallas Heart Study, a multiethnic population-based study of adults from Dallas County, Texas. The participants included both men and women who had no symptoms of cardiovascular disease.

Study participants completed the Montreal Cognitive Assessment (MoCA), a 30-point standardized test for detecting mild cognitive impairment, and underwent magnetic resonance imaging (MRI) of the brain to identify white matter hyperintensity (WMH) volume. Bright white spots known as high signal intensity areas on a brain MR images indicate abnormal changes within the white matter.

"Increased white matter hyperintensity volume is part of the normal aging process," Dr. Maroules explained. "But excessive WMH volume is a marker for cognitive impairment."

Study participants also underwent imaging exams to measure the buildup of plaque in the arteries in three distinct vascular areas of the body: MRI to measure wall thickness in the carotid arteries and the abdominal aorta, and computed tomography (CT) to measure coronary artery calcium, or the amount of calcified plaque in the arteries of the heart.

Using the results, researchers performed a statistical regression to correlate the incidence of atherosclerosis and mild cognitive impairment. After adjusting for traditional risk factors for atherosclerosis—including age, ethnicity, male sex, diabetes, hypertension, smoking and body mass index—they found independent relationships between atherosclerosis in all three vascular areas of the body and cognitive health, as measured by MoCA scores and white matter hyperintensity volume on MR images.

Individuals in the highest quartile of internal carotid wall thickness were 21 percent more likely to have cognitive impairment as measured by a low MoCA score. An increasing coronary artery calcium score was predictive of large white matter intensity volume on MRI.

"These results underscore the importance of identifying atherosclerosis in its early stages, not just to help preserve heart function, but also to preserve cognition and brain health," Dr. Maroules said.

Dr. Maroules said the MRI and CT imaging techniques provide valuable prognostic information about an individual's downstream health risks.

"Plaque buildup in blood vessels throughout the body offers us a window into brain health," he said. "Imaging with CT and MRI has an important role in identifying patients who are at a higher risk for cognitive impairment."

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RSNA2014特集

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