

## 3D MRIは糖尿病患者における脳卒中リスクの早期徴候を示す (SSA17-05)

3D MRIを用いた動脈の画像診断は糖尿病患者の脳卒中リスクを判定するのに役立ち得る

Arterial imaging with 3-D MRI could help determine stroke risk among diabetics

糖尿病患者には、脳卒中リスクを上昇させ得る進行した血管疾患が内在している可能性がある。と2015年Radiological Society of North America (RSNA) 年次集会で発表された。研究者らは3D MRIを用いて、進行した動脈硬化疾患を示す頸動脈プラーク内出血 (IPH) 所見を調べた。さらに、非糖尿病の人々よりも、転帰不良な脳卒中リスクが既に有意に高い糖尿病患者群に焦点を当てた。食事療法トライアルから組み入れられた平均年齢63歳の無症候性2型糖尿病患者159人を、3D MRIを用いて頸動脈IPH有病率を調査した。画像検査を受けた患者159人のうち、37人 (23.3%) は少なくとも1本の頸動脈にIPHを有していた。これらの37人中5人が両側の頸動脈にIPHを有していた。IPHは頸動脈狭窄がなくとも認められ、3D MRIで計測した頸動脈壁容積増加と関連があった。現時点ではIPHに対する治療法はないが、3D MRIはリスク層別化に役立つ可能性があり非糖尿病の人々においても適用し得る、と筆者らは指摘している。

### Full Text

People with diabetes may be harboring advanced vascular disease that could increase their risk of stroke, according to new research presented at the 2015 annual meeting of the Radiological Society of North America (RSNA). The findings suggest that arterial imaging with 3-D MRI could be useful in helping to determine stroke risk among diabetics.

Narrowing of the carotid arteries is associated with risk of stroke, but less is known about stroke risk in people with little or no narrowing of these arteries. For the new study, researchers used 3-D MRI to study the carotid arteries for evidence of intraplaque hemorrhage (IPH), an indicator of advanced atherosclerotic disease.

"A recent analysis of multiple studies has shown that people with carotid artery narrowing and IPH have a five- to six-times higher risk of stroke in the near future compared to people without," said study author Tishan Maraj, M.B.B.S., imaging analyst at Sunnybrook Research Institute and M.Sc. candidate at the University of Toronto in Toronto, Canada.

Dr. Maraj and colleagues focused their study on people with diabetes, a group already facing a significantly increased risk of strokes with worse outcomes than the non-diabetic population. They used 3-D MRI to investigate the prevalence of carotid IPH in 159 asymptomatic type 2 diabetic patients, average age 63, recruited from a dietary trial between 2010 and 2013.

Of the 159 patients imaged, 37, or 23.3 percent, had IPH in at least one carotid artery. Five of the 37 patients had IPH in both carotid arteries. IPH was found in the absence of carotid artery stenosis and was associated with an increased carotid artery wall volume as measured by 3-D MRI.

"It was surprising that so many diabetic patients had this feature," Dr. Maraj said. "We already knew that people with diabetes face three to five times the risk of stroke, so perhaps IPH is an early indicator of stroke risk that should be followed up."

While 2-D MRI has been used for more than a decade to identify and characterize carotid artery plaques, the 3-D method brings an extra level of imaging power, Dr. Maraj noted. "The advantage of 3-D MRI is you can image the entire carotid artery and pinpoint the area of interest over a shorter period of time compared with multiple 2-D sequences," he said.

Dr. Maraj emphasized that the study did not look at outcomes for the patients and did not draw any conclusions on whether people with IPH will develop carotid artery blockages more quickly than those with no IPH present. However, it is already known that blood is a destabilizing factor of plaque that promotes rupture, setting off a chain of events that can lead to a stroke.

Although there is no treatment for IPH at this time, Dr. Maraj said identification of it may help with risk stratification and could even have applications in the non-diabetic population.

"Even though you can't treat IPH, you can monitor patients a lot more closely," he said.

Co-authors on the study are Alan R. Moody, M.D., FRCP, FRCR, Navneet Singh, M.D., Tina Binesh Marvasti, M.Sc., Mariam Afshin, Ph.D., M. Eng., Pascal N. Tyrrell, Ph.D., and David Jenkins, M.D., Ph.D., D.Sc.

## RSNA2015 特集

### Cardiology

3D MRIは糖尿病患者における脳卒中リスクの早期徴候を示す

早期段階の脳疾患と心疾患とに関連が認められた

MRIにより一流ダイバーの無呼吸中の心血管系変化が示された

### Oncology

Subsolidの肺結節は男性よりも女性におけるがんリスクを増大させる

乳腺密度のみではがんのリスクファクターにならない

### Psychiatry

小児において親がいないことは脳の発達を遅延させる可能性がある

肥満小児において食物のにおいは脳の衝動性領域を活性化させる

患者の気分は医療処置の結果に影響を及ぼし得る