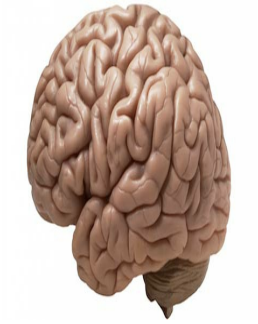
HealthManagement
Promoting Management and Leadership

# Study: Diabetes Impacts Brain Structure



According to the findings of a new study entitled “Effect of Diabetes on Brain Structure: The Action to Control Cardiovascular Risk in Diabetes MR Imaging Baseline Data” and published online in the journal Radiology, there appears to be a link between type 2 diabetes and brain degeneration.

The researchers further discovered that diabetes may not be directly associated with small vessel ischemic disease, where the brain does not receive enough oxygenated blood, opposing common clinical belief.

Lead author R. Nick Bryan, MD, PhD, professor of radiology at the Perleman School of Medicine at the University of Pennsylvania, outlined that the study, in which four US centers participated, unveiled less brain tissue in patients suffering from a more severe degree of diabetes, suggesting brain atrophy. He added that the direct effect of diabetes did not appear to increase vascular disease.

Diabetes affects close to 26 million US citizens and according to the American Diabetes Association (ADA) records, an additional 1.9 million are diagnosed each year. As the most widespread, type 2 diabetes occurs when either the pancreas does not produce enough insulin or the cells ignore the insulin that is produced. Based on current US trends and looking ahead to the year 2050, the ADA’s estimation suggests as many as one in three adult Americans will suffer from the disease.

As diabetes’ prevalence grows, Dr. Bryan emphasised the importance of enhanced understanding and management of the condition, if the effects on patient health are to be minimised.

To explore the link between severity and duration of type 2 diabetes mellitus and brain structure, the team of researchers utilised magnetic resonance imaging (MRI) in close to 615 patients with a mean age of 62 years and a mean disease duration of 9.9 years.

The team researchers specifically investigated whether more severe diabetes was inversely correlated with brain volumes and positively correlated with ischemic lesion volumes.

Findings revealed that longer duration of diabetes was associated with brain volume loss, particularly in the gray matter. The study did not, however, find an association of diabetes characteristics with small vessel ischemic disease in the brain.

As Dr. Bryan explained, diabetes duration correlated primarily with brain atrophy, suggesting that for every 10 years of diabetes duration, the brain of a patient with diabetes looks approximately two years older than that of a non-diabetic person, in terms of gray matter volume.

Noting that the study’s findings may have an impact on future decline of cognitive function in patients with diabetes, the researchers raised the possibility that such cognitive changes might not be strongly related to vascular dementia, but instead to neurodegenerative disorders such as Alzheimer’s disease.

Source: RSNA

29 April 2014

Published on : Tue, 29 Apr 2014