Stroke. 2016 Mar;47(3):701-7. doi: 10.1161/STROKEAHA.115.012147

Significance of Cerebral Small-Vessel Disease in Acute Intracerebral Hemorrhage.

Sato S, Delcourt C, Heeley E, Arima H, Zhang S, Al-Shahi Salman R, Stapf C, Woo D, Flaherty ML, Vagal A, Levi C, Davies L, Wang J, Robinson T, Lavados PM, Lindley RI, Chalmers J, Anderson CS; INTERACT2 Investigators.

Abstract

BACKGROUND AND PURPOSE:

The significance of structural changes associated with cerebral small-vessel disease (SVD), including white matter lesions (WML), lacunes, and brain atrophy, to outcome from acute intracerebral hemorrhage is uncertain. We determined associations of computed tomographic radiological manifestations of cerebral SVD and outcomes, and in terms of any differential effect of early intensive blood pressure-lowering treatment, in the large-scale Intensive Blood Pressure Reduction in Acute Cerebral Hemorrhage Trial (INTERACT2).

METHODS:

We graded WML (van Swieten scale), the presence of lacunes, and brain atrophy (2 linear measurements and visual rating) for 2069 of 2839 patients with available baseline brain computed tomography (<6 hours of intracerebral hemorrhage onset) by 3 independent neurologists blind to clinical data.

RESULTS:

WML grade and 2 linear measurements of brain atrophy were associated with death or major disability at 90 days: multivariable-adjusted odds ratios for WML (grade 3 and 4 versus 0), frontal ratio, and third ventricle Sylvian fissure distance (most versus least severe atrophy quartile) were 1.42 (95% confidence interval, 1.02-1.98), 1.47 (1.08-1.99), and 1.64 (1.21-2.22), respectively (all P for trend <0.05). There was no association between lacunes and outcomes. There were no significant differences in the effects of intensive blood pressure-lowering across subgroups of cerebral SVD.

CONCLUSIONS:

Preexisting cerebral SVD manifestations of WML and brain atrophy predict poor outcome in acute intracerebral hemorrhage. There is no apparent hazard of early intensive lowering of blood pressure according to the INTERACT2 protocol, in patients with underlying cerebral SVD.