DEMENTIA RISK AFTER SPONTANEOUS INTRACEREBRAL HAEMORRHAGE: A PROSPECTIVE COHORT STUDY

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Summary

Background
Dementia occurs in at least 10% of patients within 1 year after stroke. However, the risk of dementia after spontaneous intracerebral haemorrhage that accounts for about 15% of all strokes has not been investigated in prospective studies. We aimed to determine the incidence of dementia and risk factors after an intracerebral haemorrhage.

Methods
We did a prospective observational cohort study in patients with spontaneous intracerebral haemorrhage from the Prognosis of Intracerebral Haemorrhage (PITCH) cohort who were admitted to Lille University Hospital, Lille, France. We included patients aged 18 years and older with parenchymal haemorrhage on the first CT scan. Exclusion criteria were pure intraventricular haemorrhage; intracerebral haemorrhage resulting from intracranial vascular malformation, intracranial venous thrombosis, head trauma, or tumour; haemorrhagic transformation within an infarct; and referral from other hospitals. Median follow-up was 6 years. We studied risk factors (clinical and neuroradiological [MRI] biomarkers) of new-onset dementia as per a prespecified subgroup analysis, according to intracerebral haemorrhage location. Dementia diagnosis was based on the National Institute on Aging-Alzheimer's Association criteria for all-cause dementia. We did multivariable analyses using competing risk analyses, with death during follow-up as a competing event.

Findings
From the 560 patients with spontaneous intracerebral haemorrhage enrolled in the PITCH cohort between Nov 3, 2004 and March 29, 2009, we included 218 patients (median age 67·5 years) without pre-existing dementia who were alive at 6 months follow-up. 63 patients developed new-onset dementia leading to an incidence rate of 14·2% (95% CI 10·0–19·3) at 1 year after intracerebral haemorrhage, and incidence reached 28·3% (22·4–34·5) at 4 years. The incidence of new-onset dementia was more than two times higher in patients with lobar intracerebral haemorrhage (incidence at 1 year 23·4%, 14·6–33·3) than for patients with non-lobar intracerebral haemorrhage (incidence at 1 year 9·2%, 5·1–14·7). Disseminated superficial siderosis (subhazard ratio [SHR] 7·45, 95% CI 4·27–12·99), cortical atrophy score (SHR per 1-point increase 2·61, 1·70–4·01), a higher number of cerebral microbleeds (SHR for >5 cerebral microbleeds 2·33, 1·38–3·94), and older age (SHR per 10-year increase 1·34, 1·00–1·79) were risk factors of new-onset dementia.

Interpretation
There is a substantial risk of incident dementia in dementia-free survivors of spontaneous intracerebral haemorrhage; our results suggest that underlying cerebral amyloid angiopathy is a contributing factor to the occurrence of new-onset dementia. Future clinical trials including patients with intracerebral haemorrhage should assess cognitive endpoints.

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