Hypothesis of Intracerebral Hemorrhage Growth

To the Editor:

I read with great interest the article by Mayer reviewing ultra-early hemostatic therapy for intracerebral hemorrhage (ICH). Prospective and retrospective studies had confirmed that ICH growth is a common phenomenon, especially within the first 6 hours of onset. Moreover, hematoma volume has been identified as the single most powerful predictor of 30-day mortality after ICH.

The author describes the different mechanisms involved in the pathophysiology of early hematoma growth. Classic hypothesis is that growth results from persistent bleeding or rebleeding from a single site of arterial rupture.

However, clinical data using angiography and other neuroimaging studies have demonstrated the existence of simultaneous confluent bleedings from multiple vessels in the same area. In 2% to 3% of hemorrhagic strokes, simultaneous and multiple hematomas (SIH) have been observed in different arterial territories. We reported 4 patients with SIH, among 142 with hemorrhagic stroke. Localization of hematomas was supratentorial, except for 1 patient who had both infratentorial and supratentorial hematomas. All 4 patients had a history of uncontrolled arterial hypertension. Other causes of multiples SIH were excluded by using appropriate diagnostic tests.

Sustained hypertension during an intracerebral hemorrhage could trigger another bleeding in the surrounding area or in distant arterial regions owing to acute vascular changes in the penetrating arteries, affecting previously injured intima and media layers (degenerative changes due to chronic arterial hypertension). Further studies are necessary to clarify the underlying pathophysiological mechanisms.

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