Achy breaky brain: discussing headache and stroke

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Headache and stroke are both fairly prevalent conditions, and their association could be deemed coincidental. However, the interaction of these conditions is far more complex. Headache may either be a cause or consequence of stroke and, then again, headache syndromes can mimic stroke and vice versa. Discussion of these issues is further complicated by the diversity of headache and stroke sub-types.

Overall, up to 34% of stroke patients present with headache. While the brain is largely devoid of sensation, mechanical insults or inflammation of other cranial structures (the dura and dural sinuses, skull base and meningeal arteries and selected cranial nerves) are likely to elicit pain. Thus, it can easily be understood why headache is classically associated with haemorrhagic stroke. In fact, severity of headache has been studied as a prognostic factor in symptomatic intracerebral haemorrhage. Furthermore, subarachnoid haemorrhage, clinically characterized by thunderclap headache, has the highest association with headache (>90% of cases).

On the other hand, ischaemic stroke (IS) presents with headache less frequently (up to 25% of cases). The headache is usually non-pulsatile and ipsilateral to the lesion. The likelihood of headache is higher when the infarct is large and when it affects the insular cortex or the posterior circulation. The likelihood is lower in lacunar syndromes. In the setting of IS, headache may point the clinician to an arterial dissection or to a migrainous infarction, among others. The latter is said to occur in a patient with typical aura lasting more than one hour and neuroimaging-confirmed ischaemia.

Other cerebrovascular disorders such as cerebral venous thrombosis, reversible vasoconstriction syndrome, posterior reversible encephalopathy syndrome and vasculitides also present with headache and will be briefly mentioned.

In conclusion, headache is a non-specific, albeit clinically useful, sign in acute stroke. Thus, this complex relationship should be kept in mind when considering the differential diagnosis of acute neurological deficits.

Abstract

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