ANTIMIGRAINE DRUG SUMATRIPTAN INCREASES BLOOD FLOW VELOCITY IN LARGE CEREBRAL ARTERIES DURING MIGRAINE ATTACKS

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Sumatriptan, a novel selective 5-hydroxytryptamine_{1d} (5-HT_{1d}) receptor agonist, which is highly effective in the acute treatment of migraine attacks, blocks dural neurogenic plasma extravasation and constricts cranial blood vessels in animal experiments. We measured intra- and extracranial blood flow velocities (BFV) with a transcranial Doppler device in 67 patients during a spontaneous migraine attack, before and after treatment with 3 mg or 6 mg subcutaneous sumatriptan or placebo. Sumatriptan, but not placebo, significantly increased BFV (cm/sec) in the internal carotid and middle cerebral arteries on both sides, without detectably changing the BFV in the common and external carotid arteries. The rise in BFV increased with the dose of sumatriptan, parallel to an increase in proportion of patients improved. There were no significant changes in heart rate, blood pressure, or respiratory frequency after treatment with sumatriptan. The increase in BFV probably reflects vasoconstriction of the large basal intracranial arteries, which may be a mechanism for the antimigraine action of sumatriptan.

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Comment from Robert A. Gross, MD, PhD, FAAN, Editor-in-Chief: An early *in vivo* study that supported the hypothesis that vasoconstriction was the mechanism of action of sumatriptan.

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Antimigraine drug sumatriptan increases blood flow velocity in large cerebral arteries during migraine attacks

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