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Cortical spreading depression: target for the migraine treatment.

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Migraine is an episodic neurological condition which prominent symptom is a recurrent, severe, unilateral pulsating headache, which prevalence is 8.4% in Japan. Clinical characteristics of migraine, in addition to severe headache, include photophobia, phonophobia or autonomic nervous symptoms such as nausea and vomiting. Although migraine is not life threatening, it has a significant impact on migraine patient's quality of life. Cortical spreading depression (CSD) is defined as a transient neuronal and glial depolarization and disruption of membrane ionic gradients that propagates slowly across the cerebral cortex. There is a growing evidence from animal experiments, suggesting that CSD is the electrophysiological event underlying migraine aura and activates the trigeminovascular system and upper central nervous system, resulting in the headache. In addition, the functional MRI performed on patients during migraine with aura attacks revealed a causal role of CSD. These basic and clinical findings suggest that CSD plays a pivotal role in the pathophysiology of migraine.

Here, I review the potential correlation between the migraine pathophysiology and CSD for the knowledge necessary to develop the new therapy for migraine.