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**On the Cover:** Cellular interactions that influence cerebral and capillary blood flow, along with blood–brain barrier (BBB) integrity and function. Changes within these cell types and their interactions can promote hypoperfusion and ischemia, with subsequent BBB damage or repair. Cell types involved in such alterations include endothelium and vascular muscle, pericytes, astrocytes, and immune cells along with matrix metalloproteinases. Identification of cell types and molecules that control vascular changes before and after ischemia may result in novel approaches to slow the progression of cerebrovascular disease and lessen both the frequency and impact of ischemic events. Illustration credit: Ben Smith. See related article, page 449.