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제 목	Pharmacological Evidence that Calcitonin Gene-Related Peptide is Implicated in Cerebral Autoregulation
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내 용	<p>In the present study, it was aimed to assess the possibility that calcitonin gene-related peptide (CGRP) released in response to transient hypotension may contribute to the reflex autoregulation of cerebral blood flow as a putative modulator. Changes in pial arterial diameter (mean, $33.0 \pm 1.1 \mu\text{m}$) with changes in systemic arterial blood pressure (mean, $101.9 \pm 2.7 \text{ mmHg}$) were observed directly through a closed cranial window in anesthetized normotensive rats. Image of the pial vessels was captured with a stereoscope connected to a CCD video camera and the diameter was measured with a microscaler. In the capsaicin-treated rats (one day prior to experiment, 50 nmol capsaicin injected intracisternally), both vasodilator and vasoconstrictor responses evoked by a transient hypotension and the reverse of blood pressure were markedly attenuated or almost abolished. When changes in pial arterial diameter were plotted as a function of changes in blood pressure, the slopes of both regression lines (for vasodilators and vasoconstrictors) were markedly reduced. Similar reductions were evidenced under treatment with the CGRP antibody serum (1:1,000) and following CGRP receptor desensitization. However, the autoregulatory mechanics were neither affected by treatment with spantide ($1 \mu\text{M}$), substance P antagonist, nor by substance P receptor desensitization. Suffusion with mock cerebrospinal fluid containing CGRP and cromakalim caused a vasodilatation in a concentration-dependent manner, respectively and their effects were antagonized by glibenclamide. Substance P produced a vasodilatation, which was, however, little affected by glibenclamide. These observations indicate that the CGRP released from the perivascular sensory fibers in response to a hypotension is implicated in the modulation of the autoregulation of cerebral blood flow.</p>