

## 要旨

**Purpose:** Nitrite-derived NO has been shown to provide neuroprotection against brain ischemia-reperfusion injury. The present study was designed to examine the effect and mechanism of nitrite-derived NO on cerebral infarct volume in a chronic rat model.

**Methods:** Male Sprague-Dawley rats were divided into eight treatment groups : saline only, three groups with different doses of sodium nitrite ( $\text{NaNO}_2$ ), L-NNA (NOS inhibitor) with saline and with  $\text{NaNO}_2$ , ODQ (soluble guanylate cyclase inhibitor) with saline and with  $\text{NaNO}_2$ , C-PTIO (NO scavenger) with saline and with  $\text{NaNO}_2$ , allopurinol (xanthine oxidase inhibitor) with saline and with  $\text{NaNO}_2$ , indomethacin (COX inhibitor) with saline and with  $\text{NaNO}_2$ , and U-51605 (prostacyclin synthase inhibitor) with saline and with  $\text{NaNO}_2$ . The rat was injected intraperitoneally with one of the above combinations, followed by one-hour occlusion of the middle cerebral artery and then by reperfusion. Five days later, the brain was stained for quantification of cerebral infarction area as percentage of the whole brain area.

**Results:** Nitrite significantly reduced the cerebral infarct area in a dose-dependent manner. The nitrite-induced reduction in cerebral infarct area was unaffected in rats injected with C-PTIO, ODQ, allopurinol, indomethacin and U-51605. However, injection of L-NNA augmented the reduction in nitrite-induced cerebral infarct area.

**Conclusion:** Nitrite-derived NO protects the brain against ischemia-reperfusion injury through NOS-independent but GC/COX/xanthine oxidase/PGIS-dependent pathways.