

Sodium nitroprusside blocks the cat carotid chemosensory inhibition induced by dopamine, but not that by hyperoxia

Iturriaga, Rodrigo

Alcayaga, Julio

Rey, Sergio

We studied the effects of the nitric oxide (NO) synthase inhibitor, N^G-nitro-L-arginine methyl ester (L-NAME), and the NO donor, sodium nitroprusside (SNP) on cat chemosensory responses to intravenous injections of NaCN (0.1-100 µg/kg) and dopamine (0.1-20 µg/kg), and to hyperoxic ventilation (100% O₂, 60-120 s). Cats were anesthetized with sodium pentobarbitone, paralyzed and artificially ventilated to prevent secondary ventilatory effects. The frequency of chemosensory discharges ($f(x)$) was recorded from one sectioned carotid sinus nerve. L-NAME (50 mg/kg i.v.) increased basal $f(x)$ and slightly potentiated the responses to NaCN and dopamine. SNP (1-2 mg/kg i.v.) increased basal $f(x)$, but reduced the NaCN-induced increases of $f(x)$ over baseline and the transient $f(x)$ inhibitions induced by dopamine, but not those produced by hyperoxia. Present results indicate that besides the known inhibitory effect of NO on chemosensory responses to low PO₂, NO also blocks the chemosensory responses