

Abstract

Nitric oxide (NO) is one of the most important signaling molecules involved in different of cellular events. The enzyme responsible for the synthesis of NO is nitric oxide synthase (NOS). Three NOS isoforms was described. Two of them ones are constitutive and functionally depend on the presence of calcium ions and calmodulin (nNOS and eNOS), iNOS activity is independent of the concentration of calcium. NO plays a key role in the brain morphogenesis. It can regulate a synaptic plasticity, firing of neurons, and the modulation of release of other neurotransmitters and hormones. The release of NO causes the local vasodilatation. NO can initiate, under certain conditions, the neurotoxic cascade. It plays, e.g., a role in neurodegenerative diseases, but can play a neuroprotective role as well. NO is one of the pain mediators. NO is partipicant in many important diseases such as cerebral ischemia, Alzheimer's disease, Parkinson's disease, multiple sclerosis, schizophrenia and migraine. Migraine is defined as a disorder marked by pulsating headaches which persist usually for 4–72 hours and are mostly accompanied by nausea and vomiting. Patients with headache are very frequent patients of practitioner as well as of the neurologists.