The Role of Nitric Oxide in Epilepsy Induced Experimentally in Rats, and in the Anticonvulsant Effect of Diazepam

By

M.E. Mansour

Department of Pharmacology, Benha Faculty of Medicine, Zagazig University, Egypt

Abstract:

The aim of the present work was to study the involvement of Nitric oxide (NO) in the convulsive state induced by pentylenetetrazole (PTZ). Moreover, to evaluate the involvement of NO in the anticonvulsant action of diazepam.

Results of the present work revealed that convulsive state induced by PTZ (60 mg/kg I.P) resulted in significant elevation (P ≤ 0.05) of NOx (NO metabolites, NO$^{2-}$ plus NO$^{3-}$ as indices of NO generation), compared with normal rats. L-arginine (150 mg/kg I.P) induced significant elevation (P ≤ 0.05) in cortical NOx and non significant increase in the duration of clonic seizures, but both N (G) – nitro-L-Argenine (L-NOARG) (120 mg/Kg I.P) and diazepam (4 mg/Kg I.P) significantly reduce (P ≤ 0.05) both cortical NOx and duration of clonic seizures compared with epileptic non treated group.

Combined administration of L-argininæ (NO precursor) (150 mg/kg I.P) and diazepam (4 mg/Kg I.P) resulted in significant increase of both cortical NOx and duration of clonic seizures compared with diazepam treated epileptic group. Moreover, combined administration of L-NOARG (NOS inhibitor, NOSI) and diazepam (4 mg/Kg I.P) resulted in significant reduction (P ≤ 0.05) of both cortical NOx and duration of