EFFECTS OF CEFTRIAXONE AND L-NAME ON PENTYLENETERAZOLE-EVOKED CONVULSIONS

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Therapeutic doses of ceftriaxone may have anticonvulsant properties under some conditions of pentylenetetrazole (PTZ)-evoked convulsions. As nitric oxide (NO) is involved in the pathogenesis of convulsions, we determined if inhibition of NO synthesis by NG-nitro-L-arginine-methyl ester (L-NAME) could influence the effects of ceftriaxone when administered once daily (for six consecutive days) to BALBcAnNCR mice aged one and four month. Convulsive reactions to PTZ (generalised clonic convulsions and generalised clonic-tonic convulsions) and death were monitored during 30 minutes after PTZ application. All substances were administered intraperitoneally. Ceftriaxone exibited strong, statistically significant, anticonvulsant effects in mice aged one month (demonstrated by a reduced incidence of convulsions and death and delay to onset of both types of convulsions and death). Ceftriaxone's effects were reverted to control values (PTZ-treated mice) when L-NAME was administered prior to PTZ. In contrast to the effects seen in one month old mice, ceftriaxone neither prevented convulsions and death nor prolonged their latency time in four month old mice. Ceftriaxone's effects were not influenced by L-NAME. NO is therefore implicated in ceftriaxone's anticonvulsant effects in one month old BALBcAnNCR mice. Ceftriaxone and L-NAME when administered together failed to modulate PTZ-evoked convulsions in mice four months old.