Abstract


Does Mg2+ deficiency induce a long-term sensitization of the central nociceptive pathways?


INSERM EMI 9904/UdA Laboratoire Pharmacologie Fondamentale et Clinique de la Douleur, Faculté de Médecine, B.P. 38, 63001 Clermont-Ferrand, Cedex 1, France.

BACKGROUND: In rats, a Mg(2+)-deficient diet, which in a few days dramatically decreased the Mg(2+) concentration in plasma, cerebrospinal fluid (CSF) and spinal cord, was accompanied by a significant lowering of the nociceptive threshold. After reloading, the Mg(2+) concentration was rapidly normalized in both spinal cord and CSF.

DISCUSSION: In parallel, the neurological disturbances induced by Mg(2+) deficiency vanished in less that 24 h, but the reversal of the hyperalgesia was delayed for up to 11 to 20 days. In this model, repeated doses of dizocilpine (MK-801), a non-competitive NMDA receptor antagonist, given at start of the Mg(2+)-depleted diet, prevented hyperalgesia, suggesting the involvement of NMDA receptor channels.

CONCLUSION: The delayed recovery of a normal pain threshold argues for long-term sensitization of the nociceptive pathways.

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