Abstract

The muscarinic cholinergic agonist pilocarpine induces in rats seizures and status epilepticus followed by widespread damage to the forebrain. The present study was designed to investigate the effect of 5 non-steroidal anti-inflammatory drugs, sodium salicylate, phenylbutazone, indomethacin, ibuprofen and mefenamic acid, on seizures produced by pilocarpine. Pretreatment of rats with sodium salicylate, ED50 103 mg/kg (60-174), and phenylbutazone, 59 mg/kg (50-70) converted the non-convulsant dose of pilocarpine, 200 mg/kg, to a convulsant one. Indomethacin, 1-10 mg/kg, and ibuprofen, 10-100 mg/kg, failed to modulate seizures produced by pilocarpine. Mefenamic acid, 26 (22-30) mg/kg, prevented seizures and protected rats from seizure-related brain damage induced by pilocarpine, 380 mg/kg. These results indicate that non-steroidal anti-inflammatory drugs differentially modulate the threshold for pilocarpine-induced seizures.

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