Efficacy of bretazenil against cortical epileptic afterdischarges increases during early ontogeny in rats

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Abstract:
The effect of a benzodiazepine partial agonist bretazenil on cortical epileptic afterdischarges was studied in 12-, 18- or 25-day-old rat pups with implanted electrodes. Afterdischarges were induced by low-frequency stimulation of sensorimotor area four times in each animal and bretazenil (0.1; 1; 5; 10; or 25 mg/kg) and/or solvent were administered intraperitoneally between the first and second stimulation. Bretazenil was able to decrease the duration of afterdischarges as well as intensity of clonic seizures accompanying these afterdischarges in all age groups in a dose-dependent manner. The efficacy of bretazenil was age-dependent: the most marked effect on duration of afterdischarges was observed in 25-day-old rats. It is in sharp contrast with our earlier data for full agonists clonazepam and midazolam demonstrating the strongest action in the youngest group.

Key words:
cerebral cortex, epileptic afterdischarges, benzodiazepine partial agonist, ontogeny, rat