decarboxylase activity may be depressed in rats chronically dosed with EOS.

These initial experiments show that EOS is orally active and could form the basis of a therapy for pathological states in which a GABA deficiency is implicated. An example is Huntington's Chorea, which has been treated with partial success using isoniazid (Perry, Macleod & Hanson, 1977), a non-specific inhibitor of GABA-T.

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The effect of some anaesthetic agents on [^{3}H]-GABA release from rat brain slices

M.C.W. MINCHIN (introduced by A. ANGEL)

Department of Physiology, Sheffield University, Sheffield S10 2TN

Barbiturates prolong pre- and postsynaptic inhibitions in the mammalian central nervous system which are thought to be mediated by the neurotransmitter γ-aminobutyric acid (GABA), (Eccles, Schmidt & Wallis, 1963; Nicoll, Eccles, Oshima & Rubia, 1975). It is of interest therefore to determine the mechanism by which these phenomena occur, and several studies have suggested that barbiturates inhibit GABA transport (Cutler, Markowitz & Dudzinski, 1974) and have synergistic agonist actions at GABA receptors (Lodge & Curtis, 1977). The present investigation is concerned with the effect of barbiturate and, for comparison, some non-barbiturate anaesthetics on depolarization-induced [^{3}H]-GABA release from rat brain slices.

The cerebral cortices were removed from adult Wistar rats and chopped into small slices (0.1 × 0.1 × 1.0 mm approx.) which were then incubated with 0.1 μM [^{3}H]-GABA for 15 min at 37°C. The slices were then collected by filtration and superfused with warm oxygenated Krebs-phosphate solution containing 10 μM amino-oxyacetic acid to prevent metabolism of [^{3}H]-GABA. Exposing the slices to 40 mM K^+ for 9 min resulted in a 5.2 ± 0.2 (s.e. mean, $n = 64$) fold increase in the fractional efflux rate constant. Barbiturates added to the superfusing medium failed to influence the spontaneous efflux of [^{3}H]-GABA, however they inhibited the increase in release due to elevated K^+ concentration. The concentration for 50% inhibition of K^+-evoked release was 100 μM for thiopentone, 200 μM for pentobarbitone and 600 μM for methohexitone. By contrast the non-barbiturate anaesthetics ketamine (5–100 μM) and urethane (5–30 mM) did not alter either spontaneous or K^+-elicited [^{3}H]-GABA efflux.

Since the concentration of these agents for anaesthesia in rats falls within the ranges tested in this study (assuming even distribution throughout the body water) it is tempting to infer that the barbiturate-induced inhibition of GABA release may be related to anaesthesia. However, the non-barbiturate anaesthetics did not influence GABA release and so it would appear more likely that these effects seen in cortical tissue are not causal events in anaesthesia but rather represent interesting side effects possibly related to agonist action by the barbiturates at presynaptic GABA receptors.

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