

Veratridine-induced release of endogenous glutamate from rat brain cortex slices: a reappraisal of the role of calcium

Villanueva,

Frenz, Patricia

Dragnic, Patricia

Orrego, Patricia

The efflux of endogenous glutamate from thin slices of rat brain cortex superfused in vitro with artificial cerebrospinal fluid (ACSF) was studied. Initially, glutamate efflux was very high (2.5 nmol/mg protein/min), possibly because of the cutting procedure, but declined sharply, and at 30 min of superfusion was 25 pmol/mg protein/min. In ACSF without added calcium, spontaneous glutamate efflux was always higher than that in calcium-containing medium, e.g. at 30 min it was 75 pmol/mg protein/min. Addition of 10 μ M veratridine for 2 min, between 30 and 32 min of superfusion, led, in ACSF with calcium, to an increase in glutamate efflux of 288%, when the maximum efflux following veratridine is compared to the glutamate efflux that immediately preceded the application of this drug (from 25 to 97 pmol/mg protein/min), while in ACSF without added calcium, veratridine induced an increase of only 117% (from 75 to 163 pmol/mg protein/min). These results are interpreted as due to the dual effe