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ANTIEPILEPTIC EFFECTS OF QUININE IN THE PENTYLENETETRAZOLE MODEL OF SEIZURE

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Introduction: Quinine, is an anti-malarial drug that specifically blocks connexin 36 at gap junction channels.
Objective: Quinine has suppressed ictal epileptiform activity in vitro without decreasing neuronal excitability.
Aim: We considered the possible anticonvulsant effects of quinine in the pentylenetetrazole (PTZ) model of seizure.
Methods: In five groups, the mice were given quinine at the doses of 20, 30, 40, 50, or 60 mg/kg 30 min before the administration of PTZ (90 mg/kg). Two groups were injected with diazepam, the positive control (0.5, 1 mg/kg) and one group, the control group, was injected with saline + Tween 80 before the administration of PTZ. The onset of a general clonus was used as the endpoint. The general clonus was characterized by forelimb clonus followed by full clonus of the body.
Results: In the PTZ model, quinine at the dose of 60 mg/kg increased the latency of seizure. However, quinine at 40-60 mg/kg decreased the duration of seizure, dose dependently.
Conclusion: The present study provides evidence for anticonvulsant activity of quinine in the generalized clonic seizure of PTZ model. As a result of these finding, we suggest that gap junctions represent an appropriate target for the development of drugs aimed at decreasing epileptiform synchronization and preventing epileptogenesis.

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