ANTICONVULSANT DRUGS

ANTICONVULSANTS AND BONE MINERAL DENSITY

The effect of carbamazepine and valproate monotherapy on bone mineral density was measured by dual-energy x-ray absorptiometry in 27 healthy children and 26 children with uncomplicated idiopathic epilepsy treated with an anticonvulsant for longer than 18 months at the Memorial University of Newfoundland, St John's, Canada. Mean serum trough levels for carbamazepine and valproate were 6.88 and 72.04 mcg/ml, respectively. Dietary calcium was similar in treated and control patients. Valproate caused a 10 to 14% reduction in bone mineral density, and the percent reduction was related to treatment duration. Carbamazepine had no significant effect on bone mineral density. (Sheth RD, Bodensteiner JB et al. Effect of carbamazepine and valproate on bone mineral density. J Pediatr August 1995;127:256-262). (Reprints: Raj D Sheth MD, Pediatric Neurology, Box 9180, West Virginia University Health Sciences Center, Morgantown, WV 26506).

> COMMENT. Valproate but not carbamazepine causes reduction in mineralization of bone in children and adolescents, aged 8 to 20 (mean 15 years) and may predispose to osteoporotic fractures. The mechanism of decreased mineralization is undetermined. The authors suggest possible preventive measures including calcium dietary supplements, weight-bearing exercises, and avoidance of smoking.

ANTICONVULSANTS AND BRAINSTEM AUDITORY EP.

The effects on brainstem auditory evoked potentials (BAEPs) of carbamazepine in 18 and of valproate in 10 epileptic children were determined after 13 months of therapy at Istanbul University, Turkey. Blood levels were therapeutic and not associated with side effects. The peak latencies of waves I, II, and V, and interpeak intervals I-III and I-V were significantly prolonged following carbamazepine. Valproate monotherapy caused similar changes in BAEP but prolongation was not significant nor consistent. Carbamazepine suppresses auditory pathways peripherally, at the cochlea and/or auditory nerve and centrally, at the brainstem. (Yuksel A et al. Effects of carbamazepine and valproate on brainstem auditory evoked potentials in epileptic children. Child's Nerv Syst August 1995;11:474-477). (Respond: Dr Adnan Yuksel, Cingirakli Bostan Sok. 44/3, Deniz Apt., Aksaray, Istanbul, Turkey).

> COMMENT. Similar findings have been reported in 21 epileptic patients treated with carbamazepine and studied at the Institute of Clinical and Experimental Neurology, Thilisi, Republic of Georgia. (Japaridze G et al. 1993; see Ped Neur Briefs January 1994). Carbamazepine suppressed both central auditory structures and the acoustic nerve. Chronic impairment of cognitive function, as measured by changes in auditory event-related potentials, was also reported in 23 patients treated with carbamazepine at Toyama Medical University, Japan (Naganuma Y et al, 1994; see Ped Neur Briefs Jan 1994).