

There have been some reports showing that magnetic fields can cause the change of numerous neurotransmitters including excitatory and inhibitory transmitters, which are involved in seizures. In this study we aimed to examine the effect of extremely low frequency magnetic field (ELF-MF) on the sensitivity of seizure response to bicuculline in rats and mice. Rats were exposed to sham or 20 G ELF-MF for 6 hours and then bicuculline was administered i.c.v. at doses of 0.3, 1, 3 mg/kg. Seizure induction time and duration time were measured. In Mice, bicuculline was injected i.p. at various doses after exposure of sham or 20 G MF for 24 hours to measure induction time of convulsion and to calculate LD50 (lethal dose) and CD50 (convulsant dose) of clonic and tonic convulsion. ELF-MF exposure to rats reduced convulsion induction time and prolonged convulsion duration compared to bicuculline alone treatment. Mice exposed to ELF-MF showed moderately decreased CD50 and LD50 of bicuculline-induced seizure. These results suggest that extremely low frequency magnetic fields may increase the sensitivity of seizure response to bicuculline in rodents. The further study should be taken to elucidate the mechanism of this hypersensitivity.

Poster Presentations – Field A2. Therapeutics

[PA2-1] [04/18/2002 (Thr) 14:00 – 17:00 / Hall E]

The Inhibition of Beta Amyloid Aggregation by a Novel Series of Benzhydryloxy Piperidino Butyl Benzoate Derivatives

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The neuropathological characteristics of Alzheimer's disease (AD) are the accumulation of beta amyloid (A β 1-42) deposits and the collapse of systematic cholinergic neurotransmitters pathway. This study aims at the evaluation and development of benzhydryloxy piperidino butyl benzoate (BPBB) derivatives recently synthesized as an AD therapeutic agent. For this purpose we have screened BPBB derivatives through inhibition of both A β aggregation and acetylcholinesterase (AChE) for either delayed set on or curing of AD among the various therapeutic strategies.

Fluorescence assay was conducted with 5 μ M of ThT and AChE I assay was performed Ellman's method. The molecular simulations were performed using the SYBYL modeling package (Tripos Inc.). Our results show that piperidine derivatives which were synthesized as an AChE inhibitor had an inhibition effect to beta amyloid aggregation. The IC₅₀ values to AChE of the compounds with electron withdrawing group among BPBB derivatives were about 0.3 μ M to 8 μ M. The IC₅₀ of these compounds to A β aggregation were about 20 μ M to 76 μ M. We also have investigated the A β (12-42) with anti-parallel β -sheets in order to elucidate the characteristics for the aggregation. The active sites of the A β dimmers were analyzed by using the piperidine derivatives, which had an inhibition effect to A β dimmers, similar to Congo Red. It was estimated that these values were lower than Rifampicin, α -Tocopherol, β -Cyclodextrin, Ascorbic acid and Tacrine.

[PA2-2] [04/18/2002 (Thr) 14:00 – 17:00 / Hall E]

Efficacy of Recombinant Human Growth Hormone in Children with Growth Hormone Deficiency or Turner Syndrome

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Recombinant human growth hormone (rHGh) has used in treatment of growth deficiency with several causes and its efficacy varies with them. To evaluate efficacy and adverse effect of rHGh in children with growth hormone deficiency and Turner syndrome, this was carried with review of medical record. The collected data was the change of height standard deviation score (SDS), weight SDS, growth velocity