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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 (Aβ 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 Aβ aggregation and acetylcholinesterase (AChE) for either delayed set on or curing of AD among the various therapeutic strategies.
Fluorescence assay was conducted with 5μM 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 IC_{50} values to AChE of the compounds with electron withdrawing group among BPBB derivatives were about 0.3μM to 8μM. The IC_{50} of these compounds to Aβ aggregation were about 20 μM to 76μM. We also have investigated the Aβ(12-42) with anti-parallel β-sheets in order to elucidate the characteristics for the aggregation. The active sites of the Aβ dimmers were analyzed by using the piperidine derivatives, which had an inhibition effect to Aβ 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

SDS after treatment of rHGh and history of adverse effect. In addition, the patient information such as chronological and bone age in beginning of treatment and history of disease were collected. Patients were divided into 3 groups, which were idiopathic growth hormone deficiency, organic growth hormone deficiency and Turner syndrome.
Total 51 patients were included for evaluation and 20 were idiopathic growth hormone deficiency, 13 organic growth hormone deficiency and 18 Turner syndrome. The mean age of treatment start is 8.55 year-old and the mean time of treatment was 25.11 months. In height SDS and weight SDS, all patients showed increases significantly by 48 months. Growth velocity increased by 18 months and it was lager than mean velocity SDS of normal age group.
The efficacy of rHGh was affected by age of treatment start and the lower chronological age of treatment start was more effective significantly.
The adverse effects were transient except the overweight, and did not cause to discontinue, to reduce dosage of rHGh and compliance.
In conclusion, rHGh helped children with growth hormone deficiency or Turner syndrome to grow without significant side effects.

[PA2-3] [04/18/2002 (Thr) 14:00 - 17:00 / Hall E]

Effective Control of Intractable Hypercalcemia by Regular Dose of Pamidronate in Dialysis Patients

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Intractable hypercalcemia is frequently observed in long-term dialysis patients and may cause serious complications. However, except for using low calcium containing dialysate, there are only a few methods available to control complications. Pamidronate has been known to be effective for the treatment of acute hypercalcemia due to a variety of causes. But its efficacy has not been evaluated on long-term bases. We prospectively studied the efficacy, safety and adverse drug reaction of oral pamidronate for the treatment of intractable hypercalcemia. Five patients under dialysis (1 HD and 4 PD) were prospectively analyzed. These patients had hypercalcemia (>11 mg/dl) unresponsive to low Ca-containing dialysate for more than 3 months. Four patients received oral pamidronate 100 mg 3 times a week and 1 patient 100 mg for 10 consecutive days of each month for 12 weeks. PTH, osteocalcin levels and DEXA tests were performed every 3 months. In one patient with bone biopsy-proven secondary hyperparathyroidism, the serum calcium level dropped from 12.3 to 9.4 mg/dl. In other four patients, the serum calcium levels were lowered to below 11 mg/dl despite concurrent administration of oral calcium acetate as a phosphate binder. The mean serum calcium level dropped from 11.74 mg/dl to 10.44 mg/dl ($p=0.03$). The changes in serum phosphate levels were not consistent. The PTH concentrations were significantly elevated in 2 patients whose levels were higher than 200 pg/ml at the start of the treatment. The DEXA showed that their bone masses were not reduced during the observation period. No significant adverse drug reactions were noted and the frequency or duration of dialysis did not require any adjustment during this period. We concluded that oral pamidronate could be used to control intractable hypercalcemia on long-term bases without causing serious adverse drug reactions.

Poster Presentations - Field A3. Hygienics

[PA3-1] [04/18/2002 (Thr) 14:00 - 17:00 / Hall E]

Post-mortem Determination of Sildenafil in Blood

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