025P A CLINICAL TRIAL OF ADJUNCTIVE ZINC SULFATE FOR THE TREATMENT OF ATTENTION DEFICIT HYPERACTIVITY DISORDER IN CHILDREN: A DOUBLE-BLIND AND PLACEBO CONTROLLED STUDY

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Attention-deficit hyperactivity disorder (ADHD) is an early-onset, clinically heterogenous disorder of inattention, hyperactivity, and impulsiveness. The diagnosis and treatment of attention-deficit hyperactivity disorder continues to raise controversy, and, there is also an increase in treatment options (Goldman et al., 1998). Past studies have suggested that there may be a correlation of zinc deficiency and pathophysiology of ADHD (Toren et al., 1996). Indeed, zinc is basic for the production and modulation of melatonin, which helps regulate dopamine function, supposed to be an important factor in ADHD and its treatment. In this 6-week double blind, placebo controlled-trial, we assessed the effects of zinc plus methylphenidate in the treatment of children with attention deficit hyperactivity disorder.

Our subjects were 44 outpatient children (26 boys and 18 girls) between the ages of 5-11 (mean ± SD was 7.88 ± 1.67) who clearly met the DSM IV diagnostic criteria for attention-deficit hyperactivity disorder and they were randomised to methylphenidate 1 mg/kg/day + zinc sulfate 55 mg/day (with approximately 15 mg zinc element) (group 1) and methylphenidate 1 mg/kg/day + placebo (sucrose 55 mg) (group 2) for a 6 week double blind clinical trial. The principal measure of the outcome was the Teacher and Parent ADHD Rating Scale. Patients were assessed by a child psychiatrist at baseline, 14, 28 and 42 days after the medication started. Four patients dropped out from the trial (two from each group), leaving 40 patients who completed the trial. Informed consent (parent and children) was received before the administration of any study procedure or dispensing of study medication. A two-way repeated measures analysis of variance (time- treatment interaction) was used. The two groups as a between-subjects factor (group) and the four measurements during treatment as the within-subjects factor (time) were considered. In addition, a one-way repeated measures analysis of variance with a two-tailed post-hoc Tukey mean comparison test were performed in the change from baseline in each group. To compare the two groups at baseline and the outcome of two groups at the end of the trial, an unpaired Student's t-test with a two-sided P value was used. To compare the demographic data, Fisher’s exact test was performed.

The present study shows the Parent and Teacher Rating Scale scores improved with zinc sulfate over this 6-week, double blind and placebo controlled trial. The difference between the two protocols was significant as indicated by the effect of the group, the between-subjects factor ($F = 4.15$, d.f.=1, $P = 0.04$; $F = 4.50$, d.f.=1, $P = 0.04$ respectively).

This double-blind, placebo-controlled study demonstrated that zinc as a supplementary medication might be beneficial in the treatment of children with attention-deficit hyperactivity disorder. However, further investigations and different doses of zinc are required to replicate these findings in children with ADHD.

Goldman L. *et al.* (1998). JAMA 279: 1100-1107.
Toren P., *et al* (1996). Biol. Psychiat., 40: 1308-1310.