



The PSP Association's International Medical Workshop 7th July 2009

ABSTRACT

Title of Talk: COENZYME Q10 IN PSP

Part 1: Speaker(s) details	
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Part 2: Abstract (Maximum 400 words) Please make your abstract easy to understand as it will appear on our website and will be read by people with PSP and their carers who are not scientists but who will want to understand your work and what it means for them.

Mitochondrial complex I appears to be dysfunctional Progressive Supranuclear Palsy (PSP). Coenzyme Q10 (CoQ10) is a physiological co-factor of complex I. Therefore, we evaluated the short-term effects of CoQ10 in PSP.

We performed a double-blind, randomized, placebo-controlled, phase II trial including twenty-one clinically probable PSP patients (stage \leq III) to receive a liquid nano-dispersion of CoQ10 (5 mg/kg/day) or matching placebo. Over a six-week period we determined the change in CoQ10 serum concentration, cerebral energy metabolites (by ^{31}P - and ^1H -magnetic resonance spectroscopy), motor and neuropsychological dysfunction (PSP rating scale, UPDRS III, Hoehn & Yahr stage, frontal assessment battery, mini mental status examination, Montgomery Åsberg depression scale).

CoQ10 was safe and well tolerated. In patients receiving CoQ10 compared to placebo, the concentration of low-energy phosphates (adenosine-diphosphate, unphosphorylated creatine) decreased. Consequently, the ratio of high-energy phosphates to low-energy phosphates (adenosine-triphosphate to adenosine-diphosphate, phospho-creatine to unphosphorylated creatine) increased. These changes were significant in the occipital lobe and showed a consistent trend in the basal ganglia. Clinically, the PSP rating scale and the frontal assessment battery improved slightly, but significantly, upon CoQ10 treatment compared to placebo.

Since CoQ10 appears to improve cerebral energy metabolism in PSP, long-term treatment might have a disease-modifying, neuroprotective effect.