Phosphatidylserine (PS)

Technical Background

- Phosphatidylserine (PS) is one of four different phospholipids which are components of all cell membranes. The most abundant phospholipid is phosphatidylcholine (also known as lecithin).
- The membranes of nerve cells are particularly high in PS. It increases the fluidity of the cell membrane and improves the entry of nutrients and the elimination of wastes. Proper membrane integrity is essential for maintenance of the cell’s internal environment, signal transduction and secretory vesicle release.
- Over 25 human clinical studies have been done with PS, including at least 12 double blind placebo controlled trials. Most of these studies involved mature patients with existing, measurable losses in memory, judgment, abstract thought, and other high mental functions.
- Normal memory loss begins to occur as early as 30 years, and PS supplementation starting at this age has been proposed to slow age-related memory impairment (AAMI). When used in persons 50 years and older who have experienced “normal” AAMI, PS improved the cognitive age of subjects by roughly 12 years.

Sources and Recommended Intake

- No Recommended Dietary Allowance (RDA) has been established for PS.
- Phospholipids are present in virtually all vegetable and animal foods. Wheatgerm, soybeans, peanuts, eggs and liver are very rich sources.
- Doses as low as 100 mg per day have been tested clinically, but most clinical testing of PS was usually performed with dosages of 300 mg/d, with one study using 800 mg/d for 10 days. No adverse effects have been reported using these intakes.

Abstracts


We treated 149 patients meeting criteria for age-associated memory impairment (AAMI) for 12 weeks with a formulation of phosphatidylserine (100 mg BC-PS tid) or placebo. Patients treated with the drug improved relative to those treated with placebo on performance tests related to learning and memory tasks of daily life. Analysis of clinical subgroups suggested that persons within the sample who performed at a relatively low level prior to treatment were most likely to respond to BC-PS. Within this subgroup, there
was improvement on both computerized and standard neuropsychological performance tests, and also on clinical global ratings of improvement. The results suggest that the compound may be a promising candidate for treating memory loss in later life.

**Crook T, Petrie W, Wells C, Massari DC. Effects of phosphatidylserine in Alzheimer's disease. Psychopharmacol Bull 1992;28(1):61-6.** We studied 51 patients meeting clinical criteria for probable Alzheimer's disease (AD). Patients were treated for 12 weeks with a formulation of bovine cortex phosphatidylserine (BC-PS; 100 mg t.i.d.) or placebo, and those treated with the drug improved on several cognitive measures relative to those administered placebo. Differences between treatment groups were most apparent among patients with less severe cognitive impairment. Results suggest that phosphatidylserine may be a promising candidate for study in the early stages of AD.

**References**