Your Monthly Update

Dear Colleague

Welcome to the October newsletter from Pure Bio Ltd.

Did you know. . .?

The UK organic market grew by 30% and averaged sales of £7million a week in 2005!

Our topic for this month is Alzheimer's Disease

Alzheimer's Disease

Ranking	Nutritional Supplements	Botanical Medicine
Primary		*Ginkgo biloba*
Secondary	Acetyl-L-carnitine Vitamin B1 Vitamin E	Lemon Balm Periwinkle Sage
Other	Coenzyme Q10 (in combination with iron and vitamin B6) DHEA DMAE (2-dimethylaminoethanol) Folic acid Lecithin NADH/niacin Phosphatidylserine (bovine brain PS only; soy-derived PS does not appear to be effective) Vitamin B12	Bacopa

Primary – Reliable and relatively consistent scientific data showing a substantial health benefit.

Secondary – Contradictory, insufficient, or preliminary studies suggesting a health benefit or minimal health benefit.

Other – An herb is primarily supported by traditional use, or the herb or supplement has little scientific support and/or minimal health benefit.

Definition

Alzheimer's disease, the most common form of dementia, is a progressive disorder characterized by:

- **widespread loss of neurons,**
- **beta-amyloid deposits in the cerebral blood vessels,**
- **development of plaques and**
- **the presence of neurofibrillary tangles.**

These changes, occurring in the association area of the cerebral cortex, the hippocampus and the middle and temporal lobes, are accompanied by decreased concentrations of the neurotransmitter acetylcholine.

Signs & Symptoms

- **Trouble remembering things...at first, only short-term memory may be affected**
- **Eventually, long-term memory is also impaired**
- **Mood or personality changes**
- **Trouble completing ordinary tasks**
  Difficulty expressing thoughts and disorientation
- **Unusual behavior**

Cause of Alzheimers Disease

There is a very high genetic component to Alzheimer's disease.
Nerve cell destruction causes a reduction in acetylcholine, leading to impaired transmission of nerve signals and poor communication between nerve neurons.

In addition to acetylcholine, the brains of Alzheimer's patients have areas of abnormal protein called "plaques" and "tangles." The underlying cause of Alzheimer's – what actually triggers the changes in the brain – is still not fully known but could partly be due oxidation and damage to neurons over time.

It is likely that no single factor is responsible, but rather that it is due to a variety of factors, which may differ from person to person. People whose parents or brothers and sisters develop the disease appear to be at greater risk of developing it themselves, so there may be a genetic component. However, no straightforward pattern of inheritance has been found. It is known that head injury is a risk factor, and also that Alzheimer's disease often affects people with Down's syndrome.

Australian scientists believe they have identified a toxin that plays a key role in the onset of Alzheimer's disease. The toxin, called quinolinic acid, kills neurons in the brain, leading to dysfunction and death. Quinolinic acid may not be the cause of Alzheimer's disease, but it plays a key role in its progression.

Dietary Modification

It remains controversial as to whether or not aluminium in the diet can cause Alzheimer's disease. A preliminary study found Alzheimer's disease patients are more likely to have consumed foods high in aluminium additives (e.g., some grain product desserts, cheese, chocolate pudding, chocolate beverages, salt and some chewing gum), compared to people without the disease. Until this issue is resolved, it seems prudent for healthy people to take steps to minimize exposure to this unnecessary and potentially toxic metal by reducing intake of foods cooked in aluminium pots, foods that come into direct contact with aluminium foil, beverages stored in aluminium cans, and foods containing aluminium additives. Aluminium is added to some municipal water supplies to prevent the accumulation of particulates. In such areas, bottled water would be preferable or, ideally, a water filter to remove chemical and heavy metal particles. It is unlikely, however, that avoidance of aluminium exposure after the diagnosis of Alzheimer's disease could significantly affect the course of the disease.

In population studies, high dietary intake of fat and calories was associated with an increased risk for Alzheimer's disease, whereas high intake of fish was associated with a decreased risk.

Juicing is believed to be beneficial as a deficiency in antioxidant status may accelerate the progression of Alzheimer's disease.

Lifestyle Modification

Keeping active outside of one's work, either physically or mentally, during midlife may help prevent Alzheimer's disease. People with higher levels of non-occupational activities, such as playing a musical instrument, gardening, physical exercise, or even playing board games, were less likely to develop Alzheimer's later in life, according to repeated studies.

Exposure to sunlight in the morning and sleep pattern restoration may guard against the development of Alzheimer's, and slow its progress once established.

Nutritional Supplement Treatment Options

Acetyl-L-carnitine - Several clinical trials have found that acetyl-L-carnitine supplementation delays the progression of Alzheimer's disease, improves memory, and enhances overall performance in some people with Alzheimer's disease. Most short-term studies have shown clinical benefits, and most long-term studies (one year) have shown a significant reduction in the rate of deterioration. A typical supplemental amount is 1 gram TID.

Antioxidants - In a preliminary study, people who used antioxidant supplements (vitamin C or vitamin E) had a lower risk of Alzheimer's disease compared with people who did not take antioxidants. Other preliminary research shows that higher blood levels of vitamin E correlate with better brain functioning in middle-aged and older adults. The possible protective effect of antioxidants may be explained by the observation that oxidative damage appears to play a role in the development of dementia.

Vitamin B1 is involved in nerve transmission in parts of the brain (called cholinergic neurons) that deteriorate in Alzheimer's disease. The activity of vitamin B1-dependent enzymes has been found to be lower in the brains of people with Alzheimer's disease. It has therefore been suggested that vitamin B1 supplementation could slow the progression of Alzheimer's disease. Two double-blind trials have reported small but significant improvements of mental function in people with Alzheimer's disease who took 3 grams a day of vitamin B1, compared to those who took placebo.

Phosphatidylserine (PS), which is related to lecithin, is a naturally occurring compound present in the brain. Although it is not a cure, 100 mg of PS TID has been shown to improve mental function, such as the ability to remember names and to recall the location of frequently misplaced objects, in people with Alzheimer's disease.

The PS used in these studies was obtained from bovine brain phospholipids. A plant source of PS is also available. However, the chemical structure of the plant form of PS differs from the bovine form. In a preliminary study, plant-derived PS was no more effective than a placebo at improving the memory of elderly people. Soy-derived PS was also ineffective in a double-blind study of elderly people with age-related cognitive decline.

DMAE (2-dimethylaminoethanol) may increase levels of the brain neurotransmitter acetylcholine. In one preliminary trial, people with senile dementia were given DMAE supplements of 600 mg TID for four weeks. The participants did not show any changes in memory, though did show positive behaviour changes.

CoEnzyme Q10 - In a preliminary report, two people with a hereditary form of Alzheimer's disease received daily: coenzyme Q10 (60 mg), iron (150 mg of sodium ferrous citrate), and vitamin B6 (180 mg). Mental status improved in both patients, and one became almost normal after six months.

Zinc - ***In vitro*** **studies have shown that zinc can cause biochemical changes associated with Alzheimer's disease. For that reason, some scientists have been concerned that zinc supplements might promote the development of this disease. However, in a study of four people with Alzheimer's disease, supplementation with zinc (30 mg per day) actually resulted in improved mental function. In a recent review article, one of the leading zinc researchers concluded that zinc does not cause or worsen Alzheimer's disease.**

NADH - A small, preliminary trial showed that oral NADH (10 mg per day) improved mental function in people with Alzheimer's disease.

B12/Folate - It is thought that a high homocysteine level in the brain causes neuronal damage leading to progression of Alzheimer's disease. Research has found an association between Alzheimer's disease and deficiencies of vitamin B12 and folic acid. In a study of elderly Canadians, those with low blood levels of folate were more likely to have dementia of all types, including Alzheimer's disease, than those with higher levels of folate.

DHEA - Most, but not all, studies have found that people with Alzheimer's disease have lower blood DHEA levels than do people without the condition. Emerging evidence suggests a possible benefit of DHEA supplementation in people with Alzheimer's disease. In one double-blind trial, participants who took 50 mg BID for six months had significantly better mental performance at the three-month mark than those taking placebo.

Botanical Treatment Options

Ginkgo - An extract made from the leaves of the *Ginkgo biloba* tree is an approved treatment for early-stage Alzheimer's disease in Europe. While not a cure, Ginkgo biloba extract (GBE) may improve memory and quality of life and slow progression in the early stages of the disease. In addition, four double-blind trials have shown that GBE is helpful for people in early stages of Alzheimer's disease, as well as for those experiencing another form of dementia known as multi-infarct dementia.

A comparison of placebo-controlled trials of ginkgo for Alzheimer's disease concluded that the herb compared favourably with two prescription drugs, donepezil and tacrine, commonly used to treat the condition. Research studies have used 120 to 240 mg of GBE, standardized to contain 6% terpene lactones and 24% flavone glycosides per day, generally divided into two or three portions. GBE may need to be taken for six to eight weeks before desired actions are noticed.

Lesser periwinkle contains the alkaloid vincamine. Supplementation with a semi-synthetic derivative of vincamine, known as vinpocentine, showed no benefit for people with Alzheimer's disease in a preliminary study, but vincamine itself was shown to be beneficial in a later double-blind trial.

Lemon balm - In a double-blind trial, supplementation with an extract of lemon balm *(Melissa officinalis)* for 16 weeks significantly improved cognitive function and significantly reduced agitation, compared with a placebo, in people with Alzheimer's disease. The amount of lemon balm used was 60 drops per day of a 1:1 tincture, standardized to contain at least 500 mcg per ml of citral.

Sage - In a double-blind study of people with Alzheimer's disease, supplementing with sage for four months resulted in a significant improvement in cognitive function, compared with a placebo. The amount of sage used was 60 drops per day of a 1:1 tincture. Sage appears to have an effect on acetylcholine in the brain.

Bacopa - Animal studies have found the Ayurvedic herb bacopa has constituents that enhance several aspects of mental function and learning ability. A controlled study found that a syrup containing an extract of dried bacopa herb given to children

improved several measures of mental performance. A double-blind trial lasting twelve weeks found 300 mg per day of bacopa improved four out of fifteen measures of learning, memory, and other mental functions in adults.

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