Ginkgo biloba has been used medicinally for thousands of years and has been used in traditional Chinese medicine for centuries. Ginkgo biloba extract is derived from the leaves of the Ginkgo biloba or maidenhair tree. The extract is made from dried leaves, and preparations available from pharmacies and health food shops are standardised to contain the same ingredients in similar doses of 24% ginkgo flavonoids and 6% terpenoids. Flavonoids are believed to contribute to Ginkgo’s antioxidant properties.

Ginkgo biloba is used for the treatment of numerous conditions including memory and concentration problems, confusion, depression, anxiety, dizziness, tinnitus and headache, with varying levels of evidence to support its use. It is thought to have several potential mechanisms of action including increased blood flow, platelet activating factor antagonism, and as an antioxidant.

Dementia
Ginkgo biloba has been found to be effective in the symptomatic relief of dementia and is recommended by several guidelines. Numerous studies have shown Ginkgo biloba extract EGb 761 is both safe and effective in the treatment of dementia with neuropsychiatric features.

The Ginkgo Evaluation of Memory (GEM) trial, published in 2008, is the largest trial of ginkgo in dementia conducted. In this trial, conducted over 6 years, the rate of development of dementia did not significantly differ between groups receiving ginkgo or placebo, nor did the rate of development of Alzheimer’s disease. Ginkgo biloba did not significantly affect the rate of progression to dementia in people with normal cognition or mild cognitive impairment in GEM trial.

Other studies have consistently shown improvements in cognitive performance, neuropsychiatric symptoms, functional abilities and overall condition. A recent systematic review and meta-analysis concluded that at least 20 weeks treatment with Ginkgo biloba extract EGb 761 provides improvements in cognition, activities of daily living and global rating compared to placebo. The benefit was seen in people with Alzheimer’s disease, vascular dementia and mixed dementia. The effects on cognition appear to be dose-dependent. A daily dose of 240mg is required to achieve clinically significant effects.

Another very recent systematic review and meta-analysis concluded that Ginkgo biloba extract EGb761 at 240 mg/day is able to stabilize or slow decline in cognition, function, behaviour, and clinical global change at 22-26 weeks in cognitive impairment and dementia, especially for patients with neuropsychiatric symptoms. There were no important safety concerns identified.

Mild cognitive impairment
Not all memory loss leads to dementia. Mild cognitive impairment (MCI) lies between normal age-related forgetfulness and dementia. In MCI, cognition and ability to perform activities of daily living are mostly normal. The risk of progression from MCI to dementia varies, but is generally around 5% to 10% per year. Reversible causes of MCI include depression, vitamin B12 deficiency, hypothyroidism, dehydration, alcohol abuse and sleep disorders. Medicines with anticholinergic properties can also cause mild cognitive impairment.

Neuropsychiatric symptoms are frequently observed in people with MCI:
- Depression
- Apathy
- Irritability
- Sleep disturbances

A 24-week course of treatment with Ginkgo biloba extract EGb 761 240mg daily has demonstrated consistent improvements in neuropsychiatric symptoms and cognitive abilities, including executive functioning.

Peripheral artery disease
Peripheral arterial disease is caused by progressive narrowing and hardening of the arteries in one or both legs (atherosclerosis), possibly leading to
cardiovascular events. Ginkgo biloba is also used to treat intermittent claudication - pain in the muscles of the leg occurring during exercise which is relieved by a short period of rest.

Overall, there is no evidence that Ginkgo biloba has a clinically significant benefit for patients with peripheral arterial disease. A Cochrane review concluded there is no significant effect on walking distance in people with intermittent claudication.

Tinnitus
Tinnitus can be described as the perception of sound in the absence of external acoustic stimulation. People with tinnitus describe a crackling or whistling sound in the ears or inside the head. The annoying sound may be experienced all of the time, or only intermittently. A Cochrane review concluded limited evidence does not demonstrate that Ginkgo biloba is effective for tinnitus when this is the primary complaint.

Macular degeneration
Age-related macular degeneration (AMD) is a chronic disease of the retina that causes loss of central vision. AMD affects the macula, the area of the retina responsible for fine visual detail. The macula degenerates with age. AMD is the leading cause of severe loss of central vision in older persons. Two small trials have shown some positive effects on vision in people with AMD. Ginkgo biloba extract EGB761 in doses of 60mg to 240mg daily were used in these trials. It is not clear if Ginkgo biloba slows down the progression of AMD.

Adverse effects
Reported adverse effects include:
- Headache
- Dizziness
- Hypertension
- Angina pectoris
- Respiratory tract infections

Ginkgo biloba may also increase the risk of bleeding, especially when used in combination with anticoagulants (e.g. warfarin, dabigatran, rivaroxaban, apixaban), antiplatelets (e.g. aspirin, clopidogrel) and anti-inflammatories (NSAIDs). There have been reports of intracranial bleeding, especially in conjunction with these medications. However, in specific studies of EGB761, neither an effect on blood coagulation, platelet function or bleeding time could be detected. Residents should be monitored for spontaneous bleeding.

Evidence suggests that Ginkgo may influence insulin secretion. Therefore there may be a risk of interaction between Ginkgo biloba and anti-diabetic medicines. Careful monitoring of blood glucose concentrations is recommended if these medicines are coadministered. Seizures have been reported in people predisposed to seizures or on medications that lower the seizure threshold (e.g. antipsychotics, prochlorperazine). Ginkgo biloba has many potential drug interactions with commonly used medicines. A Residential Medication Management Review (RMMR) by a pharmacist will help to identify these interactions.

Summary
The safety and tolerability of certain extracts of Ginkgo biloba has been confirmed in people with dementia. There is no evidence to support the use of Ginkgo biloba to prevent cognitive decline in normal healthy older people. Other reported benefits are not evidence-based, and use in frail older people should be avoided.

References
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