Your Monthly Update

Dear Colleague

Welcome to the September 2013 newsletter from Pure Bio Ltd.

Did you know:

People with heart disease can halve their risk of a stroke or fatal heart attack by meditating. Transcendental Meditation (TM) lowers the risk by as much as 48%, even in people who are obese *(Circ Cardiovasc Qual Outcomes 2012; doi: 10.1161/Circoutcomes.112.967406)*

Don't forget our website on www.purebio.co.uk. We always welcome feedback and suggestions.

Cirrhosis

Protocol Summary

Ranking	Nutritional Supplements	Botanical Medicine
Primary	SAMe	
Secondary	Acetyl-l-Carnitine Beta glucan BCAA l-Ornithine-l-aspartate Phosphatidyl choline Zinc	Milk Thistle Peony Sea Buckthorn
Other	Bile acids Selenium Carnitine Vitamin E	
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.

The Facts

Cirrhosis is a condition of severe damage to the liver that impairs its ability to function normally.

In the UK, the most common cause of liver cirrhosis is chronic alcoholism. Liver cirrhosis may also result from chronic viral infection of the liver (hepatitis types B, C, and D) and a number of inherited diseases, such as cystic fibrosis, haemochromatosis, and Wilson's disease. If severe, liver cirrhosis may lead to liver failure. In the Western world, liver cirrhosis is the third leading cause of death in people from ages 45 to 65 (after cardiovascular disease and cancer). Liver cirrhosis may also cause a dangerous brain abnormality called portal-systemic encephalopathy (PSE), which may lead to coma. Another form of cirrhosis, primary biliary cirrhosis (PBC), damages the bile ducts in the liver, and occurs primarily in women over 35 years of age. The cause of PBC is not known.

Symptoms

Many people with cirrhosis have no symptoms for years. Others may have weakness, loss of appetite, malaise, and weight loss. With blocked bile flow, it is common for people with cirrhosis to have jaundice, itching, and fatty yellow skin nodules. Later in the disease, there may be massive bleeding inside the throat, brain abnormalities due to accumulation of ammonia in the blood, liver failure, and ultimately death.

Lifestyle Modification

Alcoholism is the leading cause of liver cirrhosis in the Western world. Drinking too much alcohol also impairs the absorption and accelerates loss of a number of key nutrients. Therefore, avoidance of alcohol is strongly recommended for people with liver cirrhosis. Alcohol is directly toxic to the liver. In people with alcohol-induced liver cirrhosis, even moderate alcohol consumption increases the risk of portal hypertension, a dangerous blood pressure abnormality in the liver's circulation.

Dietary Modification

Adequate protein intake is essential for people with alcoholic liver cirrhosis, because this condition often results in significant protein, as well as calorie, deficiency. However, people with liver cirrhosis may be unable to tolerate normal amounts of dietary protein because the cirrhotic liver is less able to detoxify ammonia, a major product of protein digestion. Ammonia toxicity contributes to PSE. The amount of protein that can be tolerated by people with cirrhosis varies considerably. In these people, there is only a small margin of safety when treating protein deficiency. Extreme caution must be exercised when changing their protein intake. A doctor familiar with this disease should closely supervise any changes in dietary protein intake by people with cirrhosis.

Some people with cirrhosis and impaired bile flow (such as in Wilson's disease or PBC) may have an excess amount of copper accumulate in the liver. If laboratory tests confirm copper excess, most doctors would recommend avoiding foods rich in copper (such as chocolate, shellfish, and liver) along with medical treatment to reduce copper stores.

Nutritional Supplement Treatment Options

SAMe - ***1,200 mg daily***. Large amounts of SAMe (S-adenosylmethionine) may improve survival and liver function in alcoholic liver cirrhosis. A double-blind trial found that 1,200 mg of SAMe per day for two years significantly decreased the overall death rate and the need for liver transplantation in people with alcoholic liver cirrhosis, particularly in those with less advanced liver disease. Preliminary trials suggest that lower amounts of SAMe (180 mg per day in one trial and 800 mg per day in another) may improve liver function in people with liver cirrhosis. SAMe supplementation has been shown to reverse the depletion of glutathione, an important antioxidant required for liver function. It has also been shown to aid in the resolution of blocked bile flow (cholestasis), a common complication of liver cirrhosis.

Acetyl-l-Carnitine - ***2 grams BD for 3 months.*** In double-blind trials, supplementing with acety-L-carnitine (2 grams BD for three months) improved fatigue and various measures of mental and neurological function in people with impaired function (minimal hepatic encephalopathy) due to cirrhosis.

Beta-Glucan, Inulin, Pectin, and **Resistant Starch** - 10 grams total fermentable fibre daily. In a study of people with cirrhosis, supplementing with 10 grams of fermentable fibre per day (containing equal parts of beta-glucan, inulin, pectin, and resistant starch) for 30 days resulted in an improvement in liver function. The impaired brain function that often accompanies cirrhosis of the liver (hepatic encephalopathy) also improved.

Branched-Chain Amino Acids (BCAA) - ***at least 5 grams daily, up to 0.24 grams per 2.2 lbs (1 kg) body weight per day.*** In addition to protein deficiency, liver cirrhosis is characterized by low blood levels of branched-chain amino acids (BCAAs) in relation to other amino acids. This imbalance may contribute to the development of PSE. BCAA supplementation could be a way to correct this problem, as well as to provide a source of needed protein, but its effectiveness is unclear. BCAAs (isoleucine, leucine, and valine) represent a good protein source for people with cirrhosis because they are less likely to induce PSE. A controlled study of protein-intolerant people with cirrhosis showed that BCAA supplementation corrected abnormal protein metabolism about as well as an equivalent amount of dietary protein without inducing PSE as frequently. In a small double-blind trial, people with liver cirrhosis taking 5 grams per day of BCAAs had significant improvement in their ability to process protein.

However, conflicting results imply that it may be that certain people with liver cirrhosis can benefit from supplementation with BCAAs while others cannot, for reasons that are unclear. In a double-blind trial, people with liver cirrhosis and PSE received 0.24 grams per 2.2 pounds body weight (approximately 16–17 grams per day) of BCAAs for 15 days, after which most experienced significant improvement in

brain function, mental status, and protein metabolism. Those who continued taking BCAAs for three months also had mild improvement in liver function tests.

Therapeutic effects of oral BCAAs have also been shown in children with liver failure and in adults with cirrhosis of the liver without PSE.

l-Ornithine-l-Aspartate - ***18 grams daily.*** L-ornithine-L-aspartate (OA) is a nutritional supplement that has been investigated as a treatment for cirrhosis and hepatic encephalopathy. In a double-blind trial, participants taking 18 grams of OA for 14 days had significant improvements in liver function, mental status, and brain function. Similar benefits have also been demonstrated using injections of OA.

Phosphatidyl Choline - ***900 mg daily***. Phosphatidyl choline (PC) breaks down scar tissue in the liver and may be able to reverse tissue changes that cause cirrhosis. In animal studies, PC has been repeatedly shown to prevent or reverse the progression of alcohol-induced cirrhosis, but this has not yet been demonstrated in humans. In a controlled trial, Czech researchers found that PC supplementation (900 mg per day for four months) improved liver function in people with cirrhosis.

Zinc - ***taken under medical supervision: 135 to 215 mg daily.*** Alcoholic liver cirrhosis is associated with zinc deficiency. In a double-blind trial, zinc acetate supplementation (200 mg three times daily, providing a total of 215 mg of elemental zinc per day), given to cirrhosis patients for seven days, significantly improved portal-systemic encephalopathy (PSE). A second trial achieved similar results after three months of treatment and a third trial found a beneficial effect from 6 months of treatment with 51 mg per day of zinc in the form of zinc L-carnosine complex. People with cirrhosis sometimes have impaired taste function, and it has been suggested that zinc deficiency may be the cause of this abnormality. Although one study demonstrated that taste problems in cirrhosis are due to the disease process itself and not to zinc deficiency, a double-blind trial showed that 200 mg three times per day of zinc sulphate (providing 135 mg of elemental zinc per day) for six weeks significantly improved taste function in people with alcoholic liver cirrhosis. A registered health practitioner should supervise long-term supplementation of zinc in these amounts.

Bile Acids – ***900 – 1200mg daily.*** People with cirrhosis have decreased secretion of bile acids. Supplementation with bile acids (such as ursodeoxycholic acid and tauroursodeoxycholic acid) may improve the composition of bile and delay disease progression in primary biliary cirrhosis (PBC). In one trial, people with PBC were followed for five to nine years. Those who took 13–15 mg per 2.2 pounds body weight of ursodeoxycholic acid (about 900–1200 mg) per day had improved liver function tests and significantly delayed progression to cirrhosis. Several other trials have confirmed that bile acids improve liver function in people with PBC.

l-Carnitine - L-carnitine injections have been used to improve circulation to the liver in people with cirrhosis. More research needs to be undertaken to confirm that oral supplement would have a similar benefit.

Selenium – ***100 – 200mcg daily.*** Selenium levels have been found to be low in people with liver cirrhosis and the need for antioxidants has been found to be increased. A small, preliminary trial suggested that 100 mcg per day of selenium may

improve liver function in people with alcoholic cirrhosis. Larger, double-blind trials of selenium in people with liver cirrhosis are needed to confirm these findings.

Vitamin E - Vitamin E has been shown to decrease damage in cirrhotic livers and may reduce immune abnormalities that contribute to the development of the disease. Further clinical trials are needed to determine if any benefits may be expected from vitamin E supplementation in people with liver cirrhosis.

Botanical Treatment Options

Milk Thistle - ***420 mg or tincture equivalent of silymarin daily.*** An extract of milk thistle ***(Silybum marianum)*** that is high in the flavonoid compound silymarin may improve liver function and increase survival in people with cirrhosis. Clinical trials have shown that silymarin (420–600 mg per day) improves liver function tests and protects liver cells against oxidative damage in people with alcohol-related liver disease. In one double-blind trial, a significant increase in survival was found in people with cirrhosis who were given 140 mg of silymarin three times a day for approximately two years. Positive results were also found in a 12-month controlled study of adults with diabetes and alcoholic liver cirrhosis taking the same daily amount of silymarin.

Peony – ***to be taken under medical supervision (in the form of the Chinese herb shakuyaku-kanzo-to).*** One double-blind trial showed that the Chinese formula shakuyaku-kanzo-to (containing white peony and licorice roots) effectively relieved muscle cramps due to cirrhosis of the liver. This formula is approved by the Japanese Ministry of Health and Welfare for cirrhosis-induced muscle cramps

Sea Buckthorn - ***15 grams TDS of sea buckthorn extract.*** Sea buckthorn has been shown to protect the liver from damage in animal studies, and to reduce blood indicators of liver damage in preliminary human studies.. In a controlled trial, 80% of people with cirrhosis who took 15 grams three times daily of sea buckthorn extract (potency or standardization not stated) had blood indicators of liver damage return to normal within six months, compared to 56% of a group taking a B-complex vitamin.

Sho-Saiko-To (Bupleurum, Peony, Pinellia, Cassia, Ginger, Jujube, Asian Ginseng, Asian Scullcap, and Licorice) - ***2.5 grams of the Chinese herbal formula sho-saiko-to TDS.*** The Chinese herb bupleurum is an important component of the formula known as sho-saiko-to. Sho-saiko-to was shown in one preliminary trial to reduce the risk of liver cancer in people with liver cirrhosis. The amount of this formula used was 2.5 grams three times daily.

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