Your Monthly Update

Dear Colleague

Welcome to the July 2012 newsletter from Pure Bio Ltd.

Did you know:

Common painkillers, such as aspirin and ibuprofen, double the risk of heart attack and treble the chances of stroke, according to research at the University of Bern, Switzerland. (BMJ, 2011: 342: c7086*). Interesting information, at a time when aspirin is being extolled as the lifestyle "wonder drug", offering protection against cancer and heart disease!*

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

Pre- and post-surgery care

Protocol Summary

Ranking	Nutritional Supplements	Botanical Medicine
Primary	Glutamine	
Secondary	Arginine Fish Oil Iron Taurine Vitamin C	Ginger
Other	Alpha ketoglutaric acid Fructo-oligosaccharides (FOS) Selenium Vitamin A Vitamins B1, B6, B12 Vitamin E Zinc	Turmeric (curcumin)

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.

Introduction

A few changes and supplements can lessen stress, improve healing, and prevent infections after surgery.

General measures important to healing include proper rest and sleep, fluid intake, as well as a nutritious and balanced diet high in fibre and low in fats and junk foods. High-quality protein foods (fish, poultry, eggs, nuts and seeds) are essential because tissue healing requires protein synthesis, so the body requires the essential amino acids to facilitate healing. A healthy intestinal flora is also important to health and healing. The diet should also contain adequate amounts of high-fibre foods (whole grains, vegetables, legumes), calcium foods (greens, grains, nuts, and small amounts of dairy products), and foods containing essential fatty acids (some nuts, seeds, or vegetable oils). Congestive foods (excess dairy products, sweets, and refined carbohydrates) and fatty foods (fried foods, fatty meats, ham and other cured meats) should be avoided.

Minimizing and handling stress is also essential to keeping the immune system strong, which is in turn important for preventing infections and supporting healing.

Lifestyle Modification

Smoking compromises overall health and is associated with poorer outcomes of many types of surgery.

Avoiding stimulating drugs, such as caffeine, and sedating drugs, such as alcohol and marijuana, prior to elective surgery, should also be recommended.

Holistic Options

Acupressure can be used to prevent nausea and vomiting. Wristbands designed to apply pressure to acupuncture points on the forearm were shown to effectively prevent post-operative nausea and vomiting in seven controlled trials and were as effective as an anti-nausea medication in another. Acupuncture and transcutaneous electrical nerve stimulation (TENS) of a wrist acupuncture point have also been shown to be effective for post-operative nausea and vomiting in controlled trials. A controlled comparison study found that electro-acupuncture of the wrist points controlled post-operative nausea and vomiting as well as anti-nausea medication and better than TENS, but both electro-acupuncture and TENS helped more than no treatment. A comprehensive review of research on acupuncture, electro-acupuncture, TENS, acupoint stimulation, and acupressure for post-operative nausea

and vomiting found these techniques to be more effective than placebo and as effective as commonly prescribed medications in adults but not in children. However, laser stimulation of the acupuncture points on the wrists both before and after surgery was effective for children in one controlled trial.

Dietary Modification

It is a good idea to begin increasing protein intake and adding healing nutrients a few weeks before surgery to build up both strength and facility of tissue repair. The diet should be a little lighter a few days prior to surgery, emphasizing more fruits, vegetables and liquids. This will help lessen digestive organ stress.

Recovery from surgery takes time. The diet should be a little lighter initially, and low in fats. Particularly with abdominal surgery a liquid or soft diet is initially beneficial. Some examples are vegetable and meat broths, fresh juices, light soups, pureed carrots, squash, mashed potatoes, bananas, applesauce, or other fruits or vegetables, progressing to oatmeal, cream of rice cereal, and richer soups.

Once tissue healing is complete and the body is stronger, a mild cleansing and detoxification may be initiated, especially if general anaesthesia was used during the surgery or other potentially toxic drugs were used afterward.

Nutritional Supplement Treatment Options

Glutamine - ***20 grams daily iv.*** Glutamine, one of the most abundant amino acids in the body, supports the health of the cells lining the gastrointestinal tract and is important for immune function. Glutamine is depleted when the body is under stress, including the stress of surgery. Blood levels of glutamine decrease following surgery, and as they return to normal, their increase parallels the increase in immune cells. Two controlled trials have shown that the use of glutamine-enriched IV formulas, providing approximately 20 grams of glutamine per day, resulted in increased immune cell activity and shorter hospital stays. Double-blind studies report that patients receiving IV formulas supplemented with glutamine after surgery had better nutritional status and better health outcomes, including fewer infections and other complications, compared with patients receiving regular formulas. There are no comparative studies using oral glutamine but many practitioners will use oral supplementation for immune support post-operatively.

Arginine - ***12.5 to 18.75 grams daily before and after surgery.*** The amino acid arginine has a role in immune function, infection prevention, and tissue repair after injury, including surgery. Animal research suggests that supplemental arginine may improve the outcomes in cardiovascular and colon surgeries. Other animal studies suggest a possible role for arginine in prevention of adhesions, a painful type of internal scarring that can occur with surgery.

Fish Oil - ***3.3 to 5 grams daily of omega-3 fatty acids before and after surgery.*** Omega-3 fatty acids have anti-inflammatory properties, and animal studies suggest that supplementation with omega-3 fatty acids may improve recovery and prevent infection after surgery. A controlled human trial found that IV nutritional formulas containing omega-3 fatty acids given post-operatively lowered the production of inflammatory chemicals compared with standard nutritional formulas.

Iron - ***consult a qualified healthcare practitioner for dosage.*** One preliminary study found iron levels to be reduced after both minor and major surgeries, and iron supplementation prior to surgery was not able to prevent this reduction. A controlled trial found that IV iron was more effective than oral iron for restoring normal iron levels after spinal surgery in children. One animal study reported that supplementation with **fructo-oligosaccharides (FOS)** improved the absorption of iron and prevented anaemia after surgery. Some researchers speculate that iron deficiency after a trauma such as surgery is an important mechanism for avoiding infection, and they suggest that iron supplements should not be given after surgery.

Iron supplements (99 mg per day) given before and for two months after joint surgery in a controlled trial improved blood values but did not change the length of hospitalization or the risk of post-operative fever. Pre-operative iron supplementation in combination with a medication that stimulates red blood cell production in the bone marrow is considered by some doctors to be an effective way to minimize the need for post-operative blood transfusions.

Ribonucleic Acid - ***1.2 to 1.8 grams daily before and after surgery***. Ribonucleic acid (RNA) is a member of the nucleotide family of biomolecules and supports protein synthesis and cell growth. During times of physical stress, RNA helps stimulate immune cell division and activity, and is needed in greater amounts. Animal studies show that nucleotides given in the diet support the immune response and decrease death rates in infected animals. In human infants, those fed nucleotide-enriched formulas have healthier gastrointestinal systems and better immune function than do those fed ordinary formulas.

Taurine - ***take at least 1.5 grams daily before and after surgery.*** Taurine is an amino acid abundantly present in the body that also appears to have an important role in immune cell functions. A preliminary trial found that patients receiving an oral formula enriched with taurine (1 gram per litre) beginning two days before surgery and continuing until five days after surgery had less inflammation after surgery compared with those receiving a standard formula.

Vitamin C - ***100 to 250 mg QD or BID.*** Vitamin C deficiency can be detrimental to immune function in hospitalised patients, and one study found that half of surgery patients recovering at home had low dietary intakes of vitamin C. Vitamin C is also a critical nutrient for wound healing. Vitamin C deficiency can also increase the risk of excessive bleeding in the surgical setting.

Alpha Ketoglutarate (AKG) - AKG (alpha-ketoglutarate) is used by cells during growth and in healing from injuries and other wounds, and is especially important in the healing of muscle tissue. Controlled studies have found IV AKG helpful for supporting protein synthesis, which often declines as a result of surgery, and for protecting the heart muscle from damage during heart surgery, but no research has investigated whether oral AKG would be similarly effective.

Selenium - Selenium is a mineral nutrient with an important role in immune function and infection prevention, and selenium deficiency has been reported in patients after intestinal surgery. A controlled trial of critically ill patients, including some with recent major surgery, found that those receiving daily selenium injections for three

weeks showed less biochemical signs of body stress compared with non-supplemented patients. The amount used in this trial was 500 mcg BID for the first week, 500 mcg once daily for the second week, and 100 mcg TID for the third week.

Vitamin A - Vitamin A plays an important role in wound healing, and one animal study suggests that vitamin A deficiency might contribute to poor recovery after surgery. Vitamin A may be particularly beneficial to post-surgical patients who are using corticosteroid medications. These medications typically slow wound healing, and a number of animal studies have found that both topical and oral vitamin A reverse this effect. Similar results have been reported for topical vitamin A in some human cases, and these researchers suggest a topical preparation containing 200,000 IU of vitamin A per ounce for improved surgical wound healing in patients using corticosteroids after surgery. Topical vitamin A may also reduce scarring in patients taking corticosteroids

Vitamins B1, **B6 and B12** - Vitamin B1, given as IM injections of 120 mg daily for several days before surgery, resulted in less reduction of immune system activity after surgery in a preliminary trial. In a controlled trial, an oral B vitamin combination providing 100 mg of B1, 200 mg of vitamin B6, and 200 mcg of vitamin B12 daily given for five weeks before surgery and for two weeks following surgery also prevented post-surgical reductions in immune activity.

Vitamin E - Some studies of surgery patients, though not all, have found that blood levels of vitamin E decrease during and after surgery. Animal research suggests that vitamin E may prevent skin scarring when used topically after surgery. Vitamin E taken orally may interfere with blood clotting; therefore, use of vitamin E before surgery should be discussed with the surgeon.

Zinc - Zinc is a mineral nutrient important for proper immune system function and wound healing. Low blood levels of zinc have been reported in patients after lung surgery. In one study this deficiency lasted for up to seven days after surgery and was associated with higher risk of pneumonia, while another study found an association between post-operative zinc deficiency and fatigue. Poor post-operative wound healing is also more common in people with zinc deficiency.

Botanical Treatment Options

A recent study found that 24% of surgery patients had taken herbal supplements before their surgeries, and 50 different herbs had been used among these patients. Little research exists, however, on the safety or efficacy of herbs before surgery. Some researchers and healthcare providers are concerned about possible harmful interactions between herbs and medications used around or during surgery, or the possibility that some herbs may increase bleeding during and after surgery. The use of herbs around the time of surgery should be discussed with a knowledgeable healthcare practitioner.

Ginger - ***1 gram of powder in a capsule 60 minutes before receiving general anesthesia*** (*inform your anaesthetist*). Nausea and vomiting can be experienced post-operatively as a result of anaesthesia. Ginger ***(Zingiber officinale)*** has anti-nausea properties and has been examined for its ability to prevent post-operative nausea and vomiting in several controlled trials. In two of these controlled trials,

ginger was found more effective than placebo and equal to an antinausea medication. A recent review concluded that 1 gram of ginger taken before surgery is an effective means for reducing post-operative nausea and vomiting.

Turmeric - 400 mg TID. Turmeric ***(Curcuma longa)*** is an herb with anti-inflammatory effects. One trial found **curcumin** (from turmeric) at 400 mg TID was more effective than either placebo or anti-inflammatory medication for relieving post-surgical inflammation.

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