Natural Approaches to Clinical Trauma and Medical Procedure Recovery

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Introduction
The use of herbs, botanicals, nutrients, topical natural agents, or homeopathic remedies to support wound healing or trauma recovery has emerged as a very important medical intervention in integrative medicine. While acute trauma due to common accidents has most often been within the scope of practice of emergency room physicians, the massive expansion in the practice of plastic surgery, aesthetic surgery, and topical laser therapy produces many cases of modest iatrogenic trauma. There is an emerging predilection from many patients and health caregivers to manage minor to moderate degrees of trauma, which may be best managed by simple, gentle, and natural options.

The contemporary advent of many cases of skin trauma from aesthetic, medical intervention has created a large need for remedies of natural origin that may soothe post-medical procedure trauma by accelerating wound healing and resolution of pain, bruising, or swelling. On the one hand, many natural remedies have been applied to accelerate recovery from surgical trauma with a limited evidence base for their use. On the other hand, in recent studies, there has been clear documentation of good scientific agreement that certain natural remedies can accelerate recovery from trauma, as demonstrated in consistent open-label observations of physicians or controlled clinical trials. The objective of this article is to review the evidence-base that exists for the application of homeopathic remedies, dietary supplements, or natural topical agents in clinical procedure or recovery from modest trauma, iatrogenic, or otherwise.

Nutrition and Trauma
Many nutrients are reported to have specific activity in the healing of soft tissue wounds. Malnutrition has been known to result in major impairment in wound healing and associated tissue changes that result in swelling or bruising. While correction of nutritional deficiency in individuals with significant degrees of malnutrition is known to accelerate wound healing, the benefit of nutrient supplementation in the promotion of soft tissue healing, in otherwise healthy individuals, remains somewhat unclear.

The correction of overt malnutrition in any patient is mandatory, and it constitutes standard medical practice before any elective surgical procedure. However, many cases of suboptimal nutrition cannot be readily detected on clinical grounds, even with somewhat complex laboratory testing. Many individuals who submit themselves to medical procedures for cosmetic reasons may be “conscientious dieters.” Such individuals may have compromised their intake of nutrient-dense food to reduce body weight. Certainly, fad or extreme diets can produce selective nutrient deficiencies, which may involve several nutrients that
play a specific role in wound or soft tissue healing. Malnutrition in clinical practice must include consideration of the overweight or obese individual. The recognized association between obesity and poor dietary practices is well-established. The overweight individual or individuals with Metabolic Syndrome X may be disproportionately represented in groups of patients who seek certain plastic surgery procedures, such as liposuction, facelifts, or other “nips and tucks.”

It is not cost-effective to investigate the nutritional status of patients undergoing aesthetic procedures by using complex, laboratory investigations. It would seem logical and justifiable in the presence of any suspicion of suboptimal nutrition to recommend a reasonably intensive and balanced nutritional supplement program prior to any form of elective surgery – at least in the short term. Dietary corrections combined with nutrient supplementation prior to elective surgery may assist in expediting the achievement of good nutritional status.

Modern concepts in dietary supplement formulations have led to the development of products that have a good range of vitamins, minerals, phytochemicals, phytoantioxidants, and other whole-food nutrients that can provide a reasonable “umbrella” form of “nutritional insurance.” Open-label observations with blends of powders that contain fruits, berries, greens, and vegetable powders have resulted in testimonials of beneficial outcome in rapid correction of minor degrees of suboptimal nutrition, recorded in an uncontrolled manner (www.naturalclinician.com). Formal studies are required to define the benefit of this type of general nutritional approach. These types of supplement regimes can be included in protocols for the nutritional preparation of a patient for elective surgical or aesthetic procedures.

The application of general nutritional support in the individual with suspected malnutrition constitutes an evidence-based approach in clinical practice. Also, the use of remedies of natural origin to enhance wound or soft tissue healing should ideally have a demonstrated evidence base in the practice of integrative medicine. Claims concerning the benefits of some nutritional supplements in improved wound and soft tissue healings are supported by controlled clinical observations, whereas many others are not.

A number of specific nutrients have been defined to play a beneficial role in wound healing in both animal and human experimental studies. Specific nutrients with these properties include vitamins A, C, and E, pantothenic acid, thiamine, and minerals including zinc, copper, manganese, and others. Various combinations of specific nutrients have been utilized to study wound healing in animals or humans with variable outcome, but it is notable that a deficiency of essential fatty acids may retard wound healing.

The use of enteric-coated fish oil supplements to provide extra nutritional support with essential omega 3 fatty acids prior to elective surgical procedures has become a focus of recent interest. There appears to be little need to supplement omega 6 essential fatty acids in most otherwise healthy people because of the ubiquitous occurrence of omega 6 fatty acids in the diets of most people (vegetable oil). The optimal ratio of omega 6 to omega 3 fatty acid intake has been recommended to be as low as 1:1, but the Standard American Diet (SAD) provides ratios of omega 6 to 3 fatty acids, up to 20:1. Evidence exists that this imbalance in the ratio of omega 6 to omega 3 fatty acids may be driving body metabolism towards disease states.

Nutritionally orientated physicians are increasingly using fish oil in enteric-coated format to prepare individuals for surgical intervention, because many such individuals may have Metabolic Syndrome X. Metabolic Syndrome X is most often associated with an overweight status and insulin resistance. Fish oil (EPA) contains the active omega 3 fatty acid, eicosapentanoic acid (EPA), which has desirable anti-inflammatory properties. A theoretical risk of the anti-coagulant potential of fish oil has resulted in some warnings about high-dosage omega 3 fatty acid supplementation, but such warnings do not appear to be entirely justified at common daily dosages of fish oil (in the range of 2 grams of fish oil, enteric-coated, with contents of key omega 3 fatty acids, eicosapentanoic acid, 600 mg, and docosahexaenoic acid, 400mg) (www.naturalclinician.com).

“Non-Nutritive” Dietary Supplements and Trauma

The terms “non-nutritive dietary supplement” could be perceived as oxymoron. Regulations governing the use of dietary supplements only permit statements that refer to “nutritional support” for body structures and functions. Most herbs and botanicals contain nutrients to a variable degree, but extracts may not contain any significant concentrations of common nutrients, per se. Certainly, supplements such as enzymes, that have found a role in the management of wound healing, must be considered “non-nutritive”; but they may have indirect nutrient-providing properties by assisting in the digestion of key nutrients.

Common herbs, botanicals, or their derivatives with documented, but variable benefits on wound healing include bromelain, papain (Carica papaya), Centella asiatica (Gotu Kola), aloe vera (most often used topically), chamomile (Matricaria chamomilla, most often used topically), mixed species of echinacea, and procyanidolic oligomers (OPCs or PCOs). The importance of the use of selected enzymes in wound healing is apparent in studies that show accelerated or enhanced healing functions following surgery or reduction in inflammatory responses to trauma or surgical interventions. It is believed that the enzymes, referred to for use in trauma, have beneficial systemic effects, not merely digestive-enhancing effects.
Accelerated Healing

Bromelain: A Key Approach to Healing

In soft tissue healing in clinical trials. Antioxidants have proven quite valuable in soft tissue healing, bruising, and inflammation following trauma or surgery. The aggregate scientific data on bromelain provide strong support for the use of bromelain in any dietary supplement or remedy of natural origin that may be used to provide nutritional support to enhance general healing. \(^4,11,21-24\)

Some of the most striking observations on the benefits of bromelain were made about 40 years ago, the time at which many Herbal Pharmacopia were relegated in importance by the conventional medical profession, or even frankly discarded. Bromelain deserves considerable renaissance of interest in medical practice as a very safe and effective way of managing swelling, bruising, and inflammation for traumatic or postoperative soft tissue damage. While high dosages of bromelain may inhibit clotting function, few documentations of this theoretical adverse effect exist and high enzymatic activity is preferred to result in bioactivity in bromelain preparations, of the order of about 100 mg of bromelain with around 2400 GDU (Gelatin Digestive Units). Pharmaceutical preparations of bromelain were made with special enteric coating many years ago, but these useful “drugs” have not remained very popular. If high enzymatic activity of bromelain is utilized, enteric coating of dietary supplements containing this enzyme may not be necessary.

Synergistic Supplement Approaches

In summary, a dietary supplement protocol to provide nutritional support for the normal body functions of wound and soft tissue healing would contain at least bromelain, vitamin C, and vitamin C helpers such as OPCs and/or rutin and/or quercetin. This combination of natural substances has an evidence base for its application in the nutritional support of the normal body functions of cutaneous and soft tissue healing.

 Arnica montana (Leopard's Bane, Mountain Snuff, Mountain Tobacco, Wolf's Bane, Wolfbane)

 Arnica montana is an endangered flowering herb found in elevated regions of Europe and Asia. In ethnobotanical literature, Arnica has been used most often in tinctures, pills, and topical delivery systems to relieve traumatic injuries, pain, bruising, sore muscles, and lacerations. Because of known toxicity, Arnica is not recommended to be taken as a dietary supplement in whole or extracted form. \(^25\)

The toxicity of Arnica montana used in whole or extract form in oral agents has included reports of heart damage, irritation of oral mucous membranes, upper gastrointestinal irritation, and sudden increases in blood pressure. \(^15-27\) These adverse effects have not been found or described or observed with the use of homeopathic Arnica preparations. \(^27\)

The irritation of mucous membranes induced by whole Arnica taken orally may be due to its presence of several sesquiterpene lactones. \(^25\)

German Commission E recommendations for the use of Arnica include only topical application or only its use in homeopathic remedies. \(^27\)

While few reported deaths have been related to the use of whole Arnica, one active component of whole or extracted forms of this plant (helenalin) can interact with many body enzyme systems in a manner that creates risks that exceed possible benefits. \(^25\)

Topical Arnica montana preparations are advised to be used only when less than 15% of Arnica oil or less than 25% of Arnica tincture is present. It is reported that higher concentrations lead to skin irritation, especially when used for prolonged periods of time. Large amounts of Arnica taken by mouth in whole form may cause death, and the use of Arnica...
on “raw skin” or open wounds may cause blistering and scarring, with or without the development of systemic toxicity and allergic dermatitis. There are no described drug interactions between Arnica montana in topical or oral forms. Homeopathic Arnica does not appear to alter various tests of blood coagulation in healthy volunteers (noted at www.herbmed.org). There has been much confusion about the potential toxicity of Arnica montana, and I stress that homeopathic preparations of Arnica montana are considered to be quite safe and variably effective when taken by mouth. Information available about the toxicity of Arnica montana is summarized at www.drugdigest.org.

While ointments, gels, and other topical forms of Arnica can be used with variable effectiveness for trauma and soft tissue healing, there may be problems with the use of high concentrations of Arnica in the presence of open wounds or damaged skin. Arnica montana belongs to the Compositae family of plants, which are notorious for producing allergic skin reactions or eczematous lesions with chronic use. In one recent placebo-controlled trial evaluating the effects of topical Arnica on the resolution of laser-induced bruising after the treatment of telangiectasias, no real benefits were observed, but these results may not be generalized to other circumstances where beneficial effects of topical Arnica have been described in postoperative recovery.

Some of the potential problems with topical Arnica have led to some degree of avoidance of its use in the postoperative patient with a surgical wound. Given these findings, there has been much recent interest in the study of homeopathic forms of Arnica that can be used in oral preparations for enhancing wound healing, treatment of bruises or contusions, dislocated bones, hematomas, phlebitis, post-traumatic or post-surgical edema, and benign musculoskeletal disorders.

Homeopathic Arnica montana

There are several pivotal studies on the use of homeopathic Arnica for the treatment of postoperative or traumatic injury. The overall benefits of some of these reported studies have been argued in the medical literature. One review concluded that Arnica showed no overall benefit beyond a placebo effect. These conclusions may be questioned. The clinical trials that were evaluated in this aggregate review of the efficacy of homeopathic Arnica were not rigorous, as implied, because the clinical trials were of variable scientific quality. In this reported synopsis of eight clinical trials with homeopathic arnica, it was noted that the trials had serious methodological flaws, despite placebo control.

There is a great problem in attempting to draw conclusions...
from data aggregated from different clinical trials that have utilized different treatment regimens, with different homeopathic dosages of Arnica, in materially different clinical circumstances. These factors, and others, preclude a conclusion that homeopathic Arnica is ineffective in postoperative healing or recovery from trauma, and they do not take account of more recent clinical experiences with homeopathic Arnica montana that show benefit in these clinical circumstances. The preferred homeopathic strength of Arnica with evidence of good clinical outcome was 30X in studies of wound healing and sports injuries.26–32

In the September 15, 2003 edition of The Journal of Plastic and Reconstructive Surgery, two randomized, placebo-controlled clinical trials compared Arnica montana in a homeopathic strength of 30X with placebo and reported overall less bruising and less swelling in the postoperative period following plastic surgery. In one study of homeopathic Arnica montana examining the reduction of bruising after facelift surgery, Seeley and Maas32 reported 24% more bruising following facelift surgery in the placebo group, which took 50% longer to recover than the group treated with the homeopathic Arnica. The results were defined from computer-imaging programs to analyze bruising and other parameters in the postoperative period of these patients. Overall, the results were found to be statistically significant with benefits for homeopathic Arnica noted on Day 1 and Day 7 in the postoperative period.32

In studies to examine the reduction of bruising and swelling following liposuction surgery, homeopathic Arnica montana was studied in a randomized, prospective, double-blind, placebo-controlled trial. Michael Kulick, MD reported at the American Society of Aesthetic Plastic Surgery, (ASAPS, 2002) that homeopathic Arnica montana reduced bruising and swelling following liposuction surgery in female patients, in the age range of 18-45 years. The results of this study were derived from opinions of independent plastic surgeons, who were asked to rank the sets of photos collected by Dr. Kulick following liposuction. In these studies, there was no substantial difference in the volume of fat removed from the 29 patients who were studied.33 The beneficial results of homeopathic Arnica in the reduction of bruising and swelling showed statistically significant improvement with the use of homeopathic Arnica when compared with placebo, under the conditions of this study.33

The Data Committee of the ASPAS has been asked to review the worldwide medical literature regarding the safety and efficacy of homeopathic Arnica. These committee members report the finding of studies with homeopathic Arnica that meet usual and customary standards of medical research. It is notable that the strength of Arnica that appeared to be optimal in the review of some studies by the data committee of the ASPAS was a homeopathic strength of 30X.

These conclusions taken with other information have led to the extensive marketing of homeopathic Arnica preparations with claims of safety and effectiveness. These claims may comply with Food and Drug Administration regulations for an over-the-counter claim of benefit of homeopathic Arnica in trauma-induced bruising and swelling. In summary, scientific agreement exists that homeopathic Arnica may be variably effective in helping wound and soft tissue healing.

A Logical Integrative Medicine Protocol for Clinical Procedure and Trauma Recovery

 Practitioners of integrative medicine play a major role in the expanding areas of medical spa treatments and aesthetic surgical procedures. Traditionally, these interventions have been the focus of clinical practice among dermatologists and plastic surgeons. Women’s health clinics have converted significant amount of clinical practice space and time to medical aesthetics, including popular procedures such as Botox injections, lip puffing, and eradication of facial lines by the injection of fillers or stimulants of dermal collagen production (e.g., Restolin®). In addition, there has been increasing practice of procedures such as liposuction and even limited skin surgical procedures by individuals without completion of a fellowship in plastic surgery. Several gynecologists have expanded the scope of their practice by performing aesthetic medical procedures for women. Overall, the use of modestly invasive surgical or medical practices for cosmetic reasons presents a newfound need, in many clinical contexts, for the natural management of postoperative trauma induced by such procedures.

Against this background, I recommend that all elective aesthetic procedures must involve careful medical examination of patients prior to surgery to define coexisting disease and to define specifically whether or not overt or occult malnutrition may be present. It appears cost-effective to provide general nutritional support, at least in the short term, for a person prior to an elective surgical procedure, under the circumstances discussed in this article. Modern nutraceutical technology would support the use of a wide range of whole-food nutrients in berries, greens, vegetable, fruit, vitamin, and mineral-enriched powders. These combinations of whole-food powders have multifunctional micronutrients. In addition, it seems logical to consider supplementing the patient with enteric-coated fish oil to provide optimal essential fatty acid ratios for good healing and other general health benefits.

The evidence base for the use of homeopathic Arnica montana in assisting soft tissue and wound healing seems to be increasing, with evidence for the dosage of homeopathic Arnica in 30X strength. Further research is required with homeopathic Arnica montana to define the extent of the portability
of its benefits. It remains uncertain whether or not homeopathic Arnica is effective for all procedures that are occurring frequently in medical spas, plastic surgery offices, and other areas of the practice of aesthetic medicine. While homeopathic Arnica appears to be valuable, safe, and efficacious in certain circumstances, it seems quite logical that homeopathic Arnica can be combined with other specific nutritional, herbal, or botanical supplements that have an evidence base for improving post-procedure healing.

This review of medical literature implies that a corroborative evidence-base may support combinations of homeopathic Arnica montana with bromelain, grapeseed extract (OPCs), vitamin C, and vitamin C helpers such as rutin or other bioflavonoids found among the class of OPCs. Of course, dietary supplements or homeopathic treatments cannot be used as a substitute for diligent postoperative care and correct patient instruction on lifestyles issues or other factors that promote healthy healing or recovery from circumstances that occur as a consequence of certain medical procedures.

In summary, the natural protocol proposed in this article to provide nutritional support for wound and soft tissue healing for minor to moderate trauma involves the following: Stage 1: general nutritional support to avoid the presence of isolated or general deficiency of nutrients that may inhibit healing, and Stage 2: the combination of homeopathic Arnica montana with other dietary supplements that have an evidence base to support healthy healing. Of course, a healthy diet and good lifestyle change are strongly advised to promote any form of recovery.

Notes

Natural Remedies

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