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Part II: The Adaptogens

by Deborah Frances

The word adaptogen is a relatively new term to herbal medicine and refers to those plants that have the ability to help us cope with stress more effectively, physiologically as well as mentally and emotionally. The use of adaptogen herbs during times of stress enables us to stay healthier and resist disease that we might otherwise fall prey to. They also help us maintain more equanimity and centeredness, allowing for clearer emotional processing and decision making, and finally they maintain and enhance good quality sleep, which might otherwise be disrupted by stressors.

Adaptogenic plants such as *Panax ginseng*, *Panax quinquefolia*, *Aralia spp.*, *Oplopanax horridum*, and *Eleutherococcus senticosus* all fall into the same family, Araliaceae. Other plants, such as *Glycyrrhiza glabra* and *Centella asiatica* act as adaptogens and are not part of the Araliaceae family. These herbs are essential for treating the adrenal exhaustion that is all too common to modern day life.

Eleutherococcus senticosus (Siberian ginseng)

Eleutherococcus, a solid reliable ally in enhancing physiological responses to stress, is one of the most well researched of the adaptogenic herbs. Repeated studies show that the quality and quantity of work performance is enhanced with the use of eleutherococcus and resistance to illness is increased with fewer incidences of influenza and general illness. Patients exhibiting symptoms of irritability, anxiety, insomnia or extreme exhaustion experience an increased sense of well being and deeper, more restful sleep. Other studies illustrate increased physical endurance in athletes with increased resistance to cold weather. Eleutherococcus has also been shown to normalize blood pressure in either hyper or hypotension and to normalize blood sugar in some cases of diabetes.

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Herbal First Aid for the Clinician

by 7Song

This is the first article in a series that will reflect my experience of practicing first aid with an emphasis on herbal and other natural remedies. Herbal first aid requires a practitioner who understands basic first aid protocols such as cleanliness, bedside manner, and the ability to identify potentially dangerous health situations, knowing ones limits, and basically, insuring the health of the patient. I strongly encourage enrolling in basic and advanced first aid classes, and studying this art. Many of the first aid situations I've encountered occurred while working at large outdoor events, most notably the Rainbow Gathering. For practitioners interested in trying their hand and learning from a variety of disciples, I recommend attending this free yearly event, held in a U.S. National Forest from July 1st - 7th and attended by up to 15,000 persons. This year, it will most likely take place on the Washington/Idaho border. For further information, access one of the websites for the Rainbow Family of Living Light.

First aid for animal bites

The bites of animals have special precautions and treatments. Aside from pain and wound management, bites often become infected due to the oropharyngeal flora deposited in the wound. Animal bites should be treated promptly and aggressively assuming bacteria may have been carried beneath the skin, if the skin was

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The Adaptogens from Page 1

Although eleutherococcus works well as an overall adaptogen, its special talent lies in its ability to provide the kind of deep ancient grandfatherly wisdom, that comes only from those who have survived many episodes of stress themselves and have learned to respond with a deep compassionate smile, ever marveling at the twists and turns of fate that mark all our lives. We can well imagine life in Siberia might leave one with such gifts.

Oplopanax horridum (devil's club)

Native to the Pacific Northwest, oplopanax is most prevalent in wet shady forests and along stream beds where it rises to a height of 3 to 10 feet. Its branches reach out in a graceful, majestic fashion with leaves that shaped somewhat like those of the maple. In spring, green or whitish flowers can be seen blooming in panicles at the top of each plant, turning to red berries by mid summer. This plant protects itself well, for it is covered with sharp spiny thorns from its base at the Earth to the tips of each leaf.

Oplopanax is an important plant in Northwest Native American Traditions. Medicinally, it has been used for arthritis, rheumatism, respiratory ailments, diabetes, digestive complaints, and as a cleansing purgative and emetic. A poultice has been used topically for a variety of skin conditions, including infected wounds and snakebites.

Oplopanax has also been used by Northwest Natives from protection and empowerment in ceremony and in daily life. As a warrior herb, oplopanax is quite willing to stand its ground and protect itself, as evidenced by its abundance of thorns. Oplopanax is well indicated for those too nice, perhaps even somewhat timid, souls who are easily overwhelmed in the face of adversity or for those folks who express a desire to claim their power but can't quite seem to follow thorough, either from fear or the toxic overlay of family and cultural taboo. In cases of acute anxiety, oplopanax may be mixed with rescue remedy where it is often serves to potentize the formula. In these cases the addition of oplopanax empowers the patient while the rescue remedy alleviates the anxiety and calms. Often patients report needing less frequent dosing of rescue remedy in acute panic states once oplopanax has been added to the formula. Positive integration of the warrior archetype enables us to stand up for ourselves effectively, approximately appropriately, and even fiercely when circumstances demand, whether

the demons we face are from within or without. oplopanax is nourishing and supportive to the immune system and may be used in acute respiratory infections as well as in the prevention of infections. In respiratory illness it is well indicated for the nonproductive nagging cough that seems to linger long after it should have done its work and moved on. In these cases, Oplopanax empowers the cough to fruitfulness in its action as an expectorant.

Aralia californica (california spikenard)

As we move from the Pacific Northwest into southern Oregon and California, oplopanax begins to thin out and disappear and a new adaptogen moves in, *Aralia californica*. Unlike oplopanax, aralia is a soft friendly looking plant, lacking the multitude of spines that make one back off from oplopanax. In fact, the soft inviting beauty of aralia seems to welcome us in, as if her inner strength is enough to protect her. Although the adaptogens may be used interchangeably with fine results, more specific prescribing can often facilitate healing at more subtle levels. So it is that oplopanax seems to help those who need to develop some sharpness and fierceness and set their boundaries while aralia helps us to trust our inner fire and boundaries enough to invite others in, embrace them and relax gently and delightfully into the process. Delight is without a doubt a word to be used in thinking of *Aralia californica*.

A related species, *Aralia racemosa* seems to be more sharp and stimulating its energy than *Aralia californica*. This plant may be well indicated for patients who don't quite need the sharp protective substance oplopanax, yet experience *Aralia californica* as leaving them more emotionally and spiritually receptive than they are prepared for.

Like oplopanax, its northerly relative, the roots of both *Aralia californica* and *racemosa* may be of help in respiratory conditions where it acts as a soothing expectorant.

Glycyrrhiza glabra (licorice root)

As an adaptogenic herb, licorice strengthens and tones immune and adrenal function making it especially invaluable for cases of adrenal exhaustion, or chronic viral infection. Licorice supports and protects the liver where it proves quite useful in the treatment of chronic hepatitis, addressing the problems in liver function, immune function and chronic inflammation. Glycyrrhiza's demulcent and anti-inflammatory activ-

ities make it useful whenever inflammation or irritation of mucous membrane tissues is involved, as with urinary tract infection, cough or throat irritation, or gastrointestinal inflammation as with Chron's disease, peptic ulcer disease or colitis. Licorice can be effective in treating reactive hypoglycemia, allergic conditions and as an adjunct in cancer therapy. Used as a harmonizer and moisturizer in many Chinese formulas, glycerrhiza's abilities to rebuild, strengthen and support vitality in multiple organ systems makes it a reliable ally in enabling our physical bodies to adapt as we journey through life. It is also used in Chinese medicine where qi and yin deficiency predominate and where a tendency to dryness manifests as part of the symptom picture.

Licorice should be used with caution or not at all when hypertension or a tendency to fluid retention are part of the patient picture.

***Uncaria tomentosa* (cat's claw, uno de gato)**

Like many adaptogenic herbs, cat's claw is anti-inflammatory, anti-allergic, and immune modulating. Native to Peru, it has been used traditionally for a wide variety of disorders including infections, arthritis, asthma, tumors, and menstrual irregularity. Modern research has revealed the presence of a large number of active constituents including quercetin which is anti-allergic, catechins which are hepatoprotective, flavanoids, giving it blood cleansing and antioxidant activity, and number of alkaloids, including substances that have been shown to reduce high blood pressure via smother muscle relaxant activity to blood vessel walls and peripheral vessel dilation. Cat's claw has also been shown to reduce cholesterol.

Experience in clinic has revealed cat's claw to be particularly helpful for women who are suffering from joint pain, or inflammation of the urinary tract, and dealing with or coming out of relationships with abusive, invasive domineering, bullying kinds of people, either in the workplace or at home. In one such case, cat's claw worked dramatically where other adrenal adaptogens including eleutherococcus, oplopanax and glycerrhiza had been only moderately successful in improving energy levels, immune functions, and general emotional health.

While this theme is present in all the cases in my clinic in which cat's claw has provide to be of significant benefit, these cases are few in number and do not by any means give us a full picture of the patient who

needs this adaptogen specifically. The synchronicity of similar symptoms and types of stressors common to all the cases do provide us with some good starting material, however.

***Centella asiatica* (gotu kola)**

An adaptogen from India, *Centella asiatica* may be specially indicated when revitalization or regeneration of nerve or brain tissue is required. Decreased mental clarity and difficulty in focusing may be especially pronounced when gotu kola is indicated. Here it is often combined with ginkgo biloba as ginkgo's ability to increase cerebral circulation is thought to potentize the effects of gotu kola. Another herb to consider combining with gotu kola in enhancing mental functioning, however, is *Vinca minor*. *Vinca minor* is also credited with increasing cerebral blood flow, as well as improving memory and focus and may be, in this author's experience, more effective in that regard than the more popular ginkgo. *Vinca* should be dosed conservatively. Five to six drops up to four times a day is often sufficient to potentize a formula with gotu kola. Recent research suggests gotu kola's normalizing effect on connective tissue metabolism may make it useful in such disease as scleroderma, autoimmune syndromes and the tendency of some patients to form keloids.

Gotu kola is a blood cleanser and as such should be considered when a chronic skin condition or tendency to abscess accompanies the overall picture of adrenal stress and immune deficiency.

***Withania somnifera* (ashwaghandha)**

Another ayurvedic herb, ashwaghandha is well indicated in cases of nervous exhaustion, and debility, where stress and strain have led to a state of overwrought nerves that prevent rest and sleep, further exacerbating the problem. Ladd says that ashwaghandha "which has the smell of a horse, gives the vitality and sexual energy of a horse." Like many of the adaptogens, ashwaghandha is anti-inflammatory and immunosupportive. It may be helpful as an adjunct in restoring sexual function or lost libido when adrenal exhaustion is part of the underlying picture.

***Panax quinquefolius* (American ginseng); *Panax ginseng* (Asian ginseng)**

Like other members of the Araliaceae family and other adaptogens, the *Panax spp* are often helpful when decreased resistance to illness, decreased stam-

ina and diminished ability to handle stressor provide the picture of adrenal exhaustion. These plants have been shown to be anti-inflammatory, and hepatoprotective and may be of particular help in some cases of cancer where they have been shown to be antitumor and to reduce the negative impact of radiation on healthy cells in patients electing to undergo radiation therapies.

As the panax species may tend to be somewhat stimulating, I find myself reserving their use for those patients who are experiencing a heaviness and lethargy in response to stress or long term illness. The Asian ginseng tends to be warming while our equally effective and quite wonderful American species in more cooling in its action.

Schisandra chinensis

Schisandra may be the indicated adaptogen when constitutional vulnerability is experienced in lung and digestive symptoms or when a case of liver congestion or chronic hepatitis calls for an herb that is also protective and rebuilding to liver tissue. Like so many of our adaptogenic herbs, schisandra is immune modulating, and may be indicated for patients whose depressed adrenal function contributes to the chronic picture of allergy, autoimmune disease or lowered resistance to disease.

Astragalus membranaceus

Commonly known in the west as an immune modulating herb, astragalus another plant from oriental medicine, is adaptogenic and liver restorative, making it another excellent choice in chronic hepatitis. Its blood cleansing and kidney toning abilities might make it a good choice when toxic states and lowered immunity are part of the picture of adrenal stress.

***Ganoderma lucidum* (reishi mushroom)**

Another deeply healing plant from China and Japan, this adaptogen has been used for a wide variety of problems with good success. Recent studies suggest it may be a very useful adjunct in the treatment of various types of cancer as well as HIV, chronic fatigue syndrome and acute mononucleosis. Here the credit is given to the high content of immune stimulating polysaccharides found in ganoderma. The sum of any plant's individual constituents working together synergistically is often what's really going on however. In ganoderma the immune enhancing activities are undoubtedly supported by other actions of the plant including its ability to calm anxiety, and sleeplessness,

protect and detoxify the liver, thereby improving liver function and to act as an antioxidant. Ganoderma may also prove beneficial in cardiovascular disease where it has been shown to improve coronary blood flow and lower cholesterol.

Finally, it has proven to be a helpful adjunct in chronic pulmonary disease where it helps rebuild a constitution worn down from long illness as well as improve lung symptoms.

***Pfaffia paniculata* (Brazilian ginseng)**

Indigenous to South America, pfaffia has been used for generations for a wide variety of conditions, due to its overall normalizing and rebuilding actions as an adaptogen. Its Spanish name is "para toda" meaning "for all things." Like other adaptogens, pfaffia acts as an immune modulating and deeply calming agent and has been used as a restorative during long term illness or chronic stress. In balancing endocrine and reproductive function, pfaffia has been helpful in treating infertility and a wide variety of menstrual and menopausal symptoms, as well as male impotence. It is normalizing to cardiovascular functioning where it may help lower high cholesterol and high blood pressure. It has been used for both hypoglycemia and diabetes as it works with the endocrine system to normalize blood sugars. Pfaffia is another of our adaptogens to be considered in treating cancer. Pfaffia contains a wide variety of nutrients including several amino acids, minerals, electrolytes, and vitamins.

Herbal First Aid *from Page 1*

penetrated. Both clinically and statistically the most common bites are from pets, with dogs contributing to 80% or more bites, followed by cats. Bites from humans are occasionally seen. Rabies, tetanus and cat-scratch disease (fever) are specialized infections that will not be covered in this article.

General strategy

- Obtain a quick history. What bit them, location(s) and felt depth of bite. Is the animal known (personal or friend's pet)?
- Current situation of biting animal. Are others in danger? Could the animal be rabid or otherwise unsafe?
- Check for damage. Cleanse and irrigate the wound (wear gloves when probing and coming into direct contact). Is there any collateral damage to nerve, muscle, joint, or tendons? Did the bite penetrate the bone? Did the person receive any other injury while escaping the primary encounter?
- Debride (surgically remove) any damaged devitalized tissue to reduce the possibility of infection and promote wound repair.
- Probe and remove any foreign material (including teeth).
- Clean and irrigate the wound again thoroughly.
- Bite wounds should be checked carefully for 3 to 4 days as infections may not take hold until then.
- Continue to debride devitalized skin and keep clean.

Approaches

- Treat obvious symptoms such as excessive bleeding (hemostatics) and intense pain (analgesics, nervines, sedatives).
- Administer immunostimulating and antimicrobial internal medicines.
- Soak for up to 20 minutes in a warm to hot antiseptic herbal wash 1-2 times daily, for up to 3-4 days.
- Prepare and apply an activated charcoal poultice. Wrap snugly into place.
- When applying bandages, take into account further inflammation that may add pressure locally.
- Internal antibiotics and immunostimulating herbal medicines should be taken every 2-4 hours, lessening dosage over time.

Quick facts

Statistics based in U.S. studies from Harrison's Principles of Internal Medicine, 14th addition.

Dog bites

1% of all emergency room visits

Greater than 1 million bites reported yearly

Approximately 15-20% of bites become infected

Infections are generally localized

Cat bites

Greater than 50% develop into infection

Narrow sharp feline incisors may penetrate deeply into tissue or joint and can carry microorganisms deeper into the wound

Human bites

Occlusion: Actual biting of someone

Clenched-fist: Fist hitting mouth. This kind often causes more serious damage and infection

Human bites become infected more often than other animal bites due to diverse oral microflora

Hepatitis B and HIV have been transferred through bites, although it is considered rare

Hands and feet are most likely to become infected, while face and head bites uncommonly become infected, though are often treated promptly for cosmetic reasons.

Dog fights

Do not get in between fighting dogs. This is a common way bites are inflicted. To break-up a dog fight, knock the dogs apart with a large heavy board, stick or baseball bat, keeping your body parts away from the biting action. Ensure it is an aggressive fight before taking aggressive action. Ask someone with more experience if you are squeamish. Untangling dog fights can usually be accomplished without harm to either dog.

- Unwrap and check wound for signs of infection at least once a day until wound is healing well. Apply fresh poultices when rewrapping.
- Signs of localized infection usually occur within 1 – 3 days and include swelling, tenderness, redness, warmth, pus and pain. Systemic infection signs include fever, swollen and infected lymph, headache, and malaise.

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Herbs and remedies

The following herbs and remedies are particularly useful for treating animal bites.

***Achillea spp* (yarrow):** A robust antiseptic, anti-inflammatory herb that makes an excellent soak. It is commonly found growing in the U.S. Learn to recognize yarrow in its colonizing leaf form when not in flower.

***Echinacea spp* (echinacea):** Echinacea tincture is valuable as a stimulator of innate immunity, especially immediately after the bite. I find administering large quantities is often most effective. For an average size adult, approximately 5 dropperfuls initially and then 2 dropperfuls (often with other herbs) every 2 hours up to 48 hours, especially if the bite is particularly worrisome or in a susceptible individual.

Activated charcoal: Possesses a strong affinity for adsorbing a variety of toxins, in this case in the form of a poultice. Apply as soon as the wound has been cleaned, debrided and soaked. I've seen activated charcoal turn some nasty situations around. Change the dressing daily, wash out any charcoal in the wound, check the quality of wound, and redress with a fresh poultice.

Charcoal poultice preparation: Prepare a moist (but not overly wet) paste of activated charcoal powder and layer it on a gauze or non-stick pad. The paste is formed with water. Add a disinfecting tincture such as *Larrea spp.* (chaparral) or *Ligusticum porteri* (osha). The poultice patch should cover the area beyond the immediate wound, and applied flush against the area. Roll gauze or elastic wrap (ACE) to help hold it in place. Making it occlusive with plastic may assist in its drawing potential. If activated charcoal is not available, burnt wood or food may help, but to a much lesser degree. Powder these items finely prior to use and ensure it is thoroughly burnt to avoid complicating the wound.

Case study

Lilac, a healthy 33 year old woman, was bitten hard in the fleshy part of her hand between the thumb and forefinger by a friend's pet wolf-dog. The dog was up-to-date on vaccinations. I saw her 3 days after she was bitten. The wound was becoming tender, painful and inflamed. She visited the first aid station the day before, however, the remedies received did not seem to assist and the pain and hand-restriction was feeling worse.

- First, I surveyed the wound's damage, it seemed entirely localized.
- Second, a hot soak of fresh achillea tea for ½ hour.
- Third, while soaking she was given 5 dropperfuls (approximately 4 ml.) of *Enchinacea angustifolia* fresh root tincture along with 1 dropperful of ligusticum fresh root tincture.
- Fourth, a poultice of activated charcoal was applied, moistened with water and larrea. fresh leaf tincture, and wrapped snugly in place.

The hot achillea soak helped reduce some of the pain and tenderness. She was also given *Piper methysticum* (kava) fresh root tincture for pain. She returned every 4 hours or so for 3 dropperfuls of echinacea. Since the infection was becoming frank when I first saw it, we unwrapped, reevaluated and redressed it again with a fresh poultice later that day. The next day some pain was present, but the redness had somewhat subsided. She repeated the achillea soak, continued taking echinacea, this time along with 2 dropperfuls of *Hydrastis canadensis* (goldenseal) fresh root tincture and put on another poultice with activated charcoal, water and larrea tincture. She continued the 4 hour echinacea protocol with 1 dropperful hydrastis that day. On the third day, tenderness was still present but less painful, and with just a little swelling and scant local redness around the bite marks. The area was rewrapped with an activated charcoal poultice and echinacea and hydrastis were administered sporadically throughout the day. By the fourth day, the bite marks were still apparent, but signs of the infection as well as pain and tenderness were mostly gone. No soak or poultice was applied, but the area was wrapped to keep clean. The wound continued to heal rapidly from here.

Categories of therapeutics

Trauma Aids: For initial shock

- Anemone spp* (pasque flower)
- Lobelia inflata* (lobelia)
- Hypericum perforatum* (St. Johnswort)
- Lavender essential oil (aromatherapy)
- Verbena spp* (vervain)

Pain relief: Sedatives, nervines

- Cannabis spp* (cannabis)
- Cimicifuga racemosa* (black cohosh)
- Epipactis helleborine* (weed orchid)

Eschscholtzia spp. (california poppy)

Lactuca spp. (wild lettuce)

Piper methysticum (kava)

Scutellaria lateriflora (scullcap)

Valeriana spp (valerian)

Ethanol

Hemostatic

Achillea spp (yarrow)

Capsicum spp (cayenne)

Yunnan Paiyao (Chinese patent medicine)

Anti-inflammatory – internal

Spiraea spp. (meadowsweet)

Filipendula ulmaria (meadowsweet)

Hypericum perforatum (St. Johnswort)

Arnica spp (arnica)

Salix spp (willow)

Anti-inflammatory - external

Achillea spp (yarrow)

Calendula officinalis (marigold)

Arnica spp (arnica)

Anaphalis spp (pussy toes)

Hypericum perforatum (St. Johnswort)

Essential oils – external use

Gaultheria

Melaleuca

Eucalyptus

Adsorbants

Activated charcoal

Clay

Charcoal (wood, vegetable)

Gauze

Antimicrobials – internal

Larrea spp (chaparral)

Echinacea spp (echinacea)

Allium sativum (garlic)

Hydrastis canadensis (goldenseal)

Commiphora spp (myrrh)

Mahonia/Berberis spp (oregon grape)

Ligusticum spp (osha)

Baptisia tinctoria (wild indigo)

Antimicrobials – external (soaks)

Achillea spp (yarrow)

Anemopsis californica (yerba mansa)

Tannin-rich plants

Larrea spp (chaparral)

Hamamelis virginiana (witch hazel)

Salvia spp. (sage)

Quercus spp (oak)

Hydrastis canadensis (goldenseal)

Avoid

If wound is deep or possible chance of infection

Salves

Symphytum spp (comfrey)

Ulmus fulva (slippery elm)

Soaks

Primary treatment in treating bite wounds. Soaks help soak the herbs deeper into the wound and “float” out foreign matter. Equipment needed includes: a fire (camp stove works well), water, container for boiling water, and another to soak affected part, and straining material. Simplified preparation: Boil water for at least 5 minutes at a continuous rolling boil (if untreated water). Add plenty of crude herb or tincture and soak afflicted part for at least 15-20 minutes. Best if soak water is kept warm to hot, and refreshed.

Liniments

Preparations based in isopropyl alcohol, used externally as antiseptic wash. Use restraint as it is absorbed into the wound.

Non-herbal supplies

Disposable gloves

Soak/wash basins

Magnifying lens (10 – 17 x loupe) to look for extraneous matter

Scalpel/razor blade

Surgical scissors

Gauze pad

Dressing material/surgical tape

Tweezers

Syringe for irrigation

Thermometer

Soap

Hydrogen peroxide

Adverse Effects

Adverse effects to Kava (*Piper methysticum*)

by Paul Bergner

Two cases of severe liver disease associated with consumption of concentrated standardized extracts of kava (*Piper methysticum*) have appeared recently in the scientific literature. One patient recovered upon withdrawal of the kava, and the other required a liver transplant. The liver damage appears to be consistent with evidence of liver damage seen in very heavy users of kava in a traditional society in the South Pacific, and with elevated liver enzymes regularly seen in kava users in Australia. Standardized extracts containing kava-lactones extracted with acetone may be many times more toxic than traditional water extracts, although excessive doses of the water extracts may still cause liver disease.

Case 1

Swiss physicians admitted a 50 year old man presenting with jaundice, fatigue, "tanned" skin, and dark urine (Escher and Desmeules). No major illnesses appeared in the history, but the man had been taking 3-4 capsules of kava extracts daily for two months for "slight anxiety." The maximum recommended dose of the product was 3 capsules per day. (Product name: Laitain, manufactured by the Schwabe company). The dose corresponded to 210-280 mg of kavalactones. He did not consume alcohol or any other drugs. Liver function tests showed the following results:

Aspartate aminotransferase: elevated by a factor of 70

Alanine aminotransferase: elevated by a factor of 60

Alkaline phosphatase: 430 IU/l (normal 30-125),

Gamma-glutamyltransferase 691 IU/l (normal 9-35)

Lactate dehydrogenase 1132 IU/l (normal 125-240)

Total bilirubin 279.2 $\mu\text{mol/l}$ (normal 6.8-25)

Conjugated bilirubin 212.3 $\mu\text{mol/l}$ (normal 1.7-8.6)

Prothrombin time was 25% of normal.

Blood tests for hepatitis A, B, C, and E, HIV, cytomegalovirus, and Epstein-Barr virus were all negative results. The patient's condition deteriorated rapidly and he received a liver transplant 2 days later. The authors performed an assessment of causality according to definition of the World Health Organization,

and for the likelihood that kava caused the condition to be "probable."

Case 2

A 39 year-old woman was admitted to the hospital because of recurrence of acute hepatitis from an unknown cause (Strahl et al.). She had a previous history acute hepatitis with abnormal liver function tests (GPT concentration of 796). Otherwise the history and physical examinations were unremarkable. Her current recurrence of hepatitis was preceded by taking a standardized extract of kava (brand not specified). Possible viral, autoimmune and metabolic causes of the hepatitis were investigated and ruled out. A liver biopsy showed acute necrotizing hepatitis. After withdrawal of the kava, liver function tests rapidly returned to normal, and all symptoms disappeared.

Community studies

The two incidents are consistent with studies of heavy kava users in the South Pacific (Matthews et al.), and also with the pharmacology of kavalactones. A 1988 study comparing the health of kava users vs non-users in a coastal Aboriginal community in Australia found abnormal liver functions tests and symptoms of liver disease to be higher in the kava users. The kava users were ranked as very heavy users (average 440 grams per week), heavy (310 grams per week), and occasional (less than 100 grams per week). All the kava users were more likely to complain of poor health and a puffy face. They were also more likely to have a scaly rash, and increased patellar reflexes. Kava-induced skin changes are common in societies with traditional use, and were first reported to the West by Captain Cook when he first encountered the islanders (Norton and Ruze). Very heavy users of kava were on average 20% underweight, with greatly increased levels of gamma-glutamyl transferase. Albumin, plasma protein, urea and bilirubin levels were decreased in kava users, and high-density lipoprotein cholesterol levels were increased. Kava users were more likely to have blood in the urine, poorly acidified urine and low urine specific gravity. The use of kava was also associated with an increased red-cell volume, with a decreased platelet volume and with a decreased lymphocyte count. Respiratory function tests suggested possible pulmonary hypertension in the kava users. The health of kava users and non-users was generally poor, as is typical in Aboriginal communities. Kava is not a traditional beverage in Australia, and used greatly in excess of that in Pacific societies with traditional consumption of kava.

Results consistent with these have also been found recently in New Caledonia, an island in Oceania, which also has no traditional use of kava, but which in recent decades has seen a proliferation of kava bars (Barguil). Barguil reports weekly doses of kava as much as ten times more than that in countries where kava is a traditional beverage. Barguil studied 21 long term (<5 years) heavy drinkers of kava, with a mean total consumption of 8 grams of total kavalactones per week. This is about 4 times the dose in a standardized extract reported in Escher. The actual dose received may be much lower, because the standardized extracts contain highly concentrated acetone-extracted kavalactones, while the lactones, which are poorly soluble in water, may be present in a lower concentration in the traditional water extraction (See discussion below). The heavy kava users had GGT levels elevated about 90% above high normal. Three volunteers reduced their consumption for a month, and GGT values returned to normal. About half the heavy users reported the scaly skin rash typical of heavy users in traditional societies (Norton and Ruze). Barguil also notes occasional cases of mild to severe hepatitis in occasional and first-time kava users, and suggests that some individuals can experience idiosyncratic allergic responses leading to hepatitis.

Chemistry of kavalactones

The incidents and reports above are consistent which the pharmacology and chemistry of the lactones in kava (Whitton). Whitton suggests that the kavalactone kawain, because of its chemical structure, could have a similar effect to acetaminophen, a well-known hepatotoxin when taken to excess, and could also interact with clotting factors in the liver to produce the hematologic symptoms seen in Escher et al. Whitton performed solubility tests of kavalactones in acetone, 96% ethanol, 25% ethanol, and water. The alcohol extracts contained from 6.8-8.9 times the concentration of kavalactones contained in the water extract (the traditional form), and the acetone extract contained 68 times the concentration.

Comment

The connection between kava consumption and liver disease reported above is strong, compared to possible toxicity reports for most herbal products. Multiple incidents with similar symptoms, disappearance of symptoms on withdrawal, elevated liver enzymes in two separate communities of heavy users, and dermatological side effects noted consistently for several hundred years. The chemical structure of

kawain is consistent with the kind of liver damage and the occasional hypersensitivity reports. Finally, the high solubility of kavalactones in acetone, the solvent used in modern standardized extracts, is much higher than that in the water extracts typical of traditional use, with the possibility that such extracts could produce more severe liver disease than the borderline results in heavy users of water extracts.

References

- Barguil. Kava and gamma-glutamyltransferase increase: hepatic enzymatic induction or liver function alteration. *BMJ*, 21 March 2001. Electronic response to Escher et al.
- Escher M., Desmeules J. Hepatitis associated with Kava, a herbal remedy for anxiety *BMJ* 2001;322:139 (20 January)
- Mathews JD, Riley MD, Fejo L, Munoz E, Milns N, Gardner ID, et al. Effects of the heavy usage of kava on physical health: summary of a pilot survey in an Aboriginal community. *Med J Aust* 1988; 148: 548-555
- Norton SA, Ruze P. Kava dermatopathy. *J Am Acad Dermatol* 1994 Jul;31(1):89-97
- Strahl S, Ehret V, Dahm HH, Maier KP. Necrotizing hepatitis after taking herbal medication. *Dtsch Med Wschr* 1998; 123:1410-1414[Medline]. (In German.)
- Whitton, P. Are Standardised Extracts Truly Herbal Medicine? *BMJ* 7 March 2001. Electronic response to Escher.
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Clinical Correspondence

Editor:

Enclosed are a few additional thoughts to add to the wonderful article on nervines by Debra Francis (*Medical Herbalism*, Volume 12, Number 1)

David Winston, Herbalist, AHG

St. Johnswort (*Hypericum perforatum*): First and foremost a nerve tonic, useful for nerve damage and pain, including phantom limb pain, sciatica, and facial nerve pain. It is also beneficial for PMS and menopausal anxiety and SAD (Seasonal Affective Disorder) with melissa. I would note that a substantial number of people have had photo-sensitivity reactions to the topical oil and would suggest avoiding its use as a sunscreen.

Motherwort (*Leonurus cardica*): Useful for hypothyroid conditions with palpitations, menopausal and PMS anxiety (use it with *Verbena hastata*). It is a superb remedy for frazzled moms who suffer from what is called Super Woman syndrome. I also find leonuris effective for white coat hypertension with linden flower and hawthorn.

Fresh oat (*Avena sativa*): May be our most effective tropho-restorative for the nervous system. It is very effective for neurasthenia (nervous exhaustion). Think of using it for people who are emotionally depleted, become over-reactive, jumpy, anxious and easily irritated. It is also used for sexual neurasthenia due to emotional exhaustion.

Hawthorn (*Crataegus monogyna* or *C. oxycanthoides*): Mostly thought of as a cardiovascular tonic. It is also an excellent nervine. In TCM the heart stores shen (consciousness) and hawthorn is beneficial for disturbed shen conditions especially ADD and ADHD. It is also of use for nervous palpitations used with leonuris.

Lemon balm (*Melissa officinalis*): A mild antidepressant and mood elevator. Use it with St. Johnswort for SAD and with hawthorne and linden for mild hypertension. It can also be used with chamomile, hawthorn and bacopa for ADD and ADHD in children.

Scullcap (*Scutellaria lateriflora*): Is a wonderful nervine useful for nervous exhaustion and anxiety. It is especially indicated for liver wind conditions such as spasms, tremors, palsies, nervous tics, restless leg syndrome, and Parkinson's Disease tremors.

Black cohosh (*Cimicifuga racemosa*): Is a herb with a wide range of uses affecting the female and male reproductive tracts, the musculo-skeletal system, the lungs and nervous system. Its effects on the nervous system are substantial. It is therapeutically useful for black cloud (doom & gloom) depression, which I find seems to be hormonally mediated. I use it frequently for menopausal depression with cactus with excellent results.

Lavender (*Lavendula spp.*): Rarely thought of as a "nervous system" herb, but it has decided activity. In addition to its use for insomnia (long sleep latency and insomnia of old age), I use it with rosemary, basil, or damiana for stagnant depression. This is a situational depression often associated with emotional trauma. The patient seems to be "stuck" on this event replaying it over and over in their minds.

Chamomile (*Matricaria recutita*): A well-known nervine appropriate for infants, children and adults. It is useful for children with ADD, ADHD, nervous headaches, bruxism, mild insomnia, fussy, teething babies, cranky kids, and for night terrors (use with Rescue Remedy).

California poppy (*Eschscholtzia californica*): The roots of this beautiful herb are much stronger than the leaves or flowers, but the entire plant can be utilized. *Eschscholtzia* is an effective anodyne, sedative, and antianxiolytic. It can be used for insomnia with pain with *Corydalis cava* (80/20), for adults with ADHD, spasmodic headaches, and with leonuris, verbena, or kava for acute anxiety.

Passion flower (*Passiflora incarnata*): The specific indications for passiflora are patients who can't sleep due to circular thinking. These patients can't turn off their minds and thus can't relax. *Passiflora* combines well with lavender, scutellaria, and chamomile. *Passiflora* is also appropriate for spasmodic nerve and muscle pain and tension headaches.

Blue vervain (*Verbena hastata*): Is an under utilized medicine especially useful for spasmodic nervous disorders. It is indicated for petit mal epilepsy, facial tics, and spasmodic headaches. It is also of great use for anxiety (PMS & menopausal) used with motherwort. Use verbena in small doses and add carminative herbs to prevent nausea.

Linden flower (*Tilia spp.*): A pleasant tasting nervine used in Europe as a beverage tea and medicine. It can be used for white coat hypertension, nervous headaches, and insomnia.

Wood betony (*Pedicularis spp.*): This little-known herb is a useful nervine which can be effective for tension headaches, TMJ pain and bruxism. It is especially indicated for sore, tired, overworked muscles caused by overexertion.

St. Johnswort and major depression: a critical review of the JAMA trial

by Jill Hoppe and Paul Bergner

The April 18, 2001 issue of the Journal of the American Medical Association (JAMA) published a clinical trial that concluded St. Johnswort was “not effective for treatment of major depression” even though results were typical for antidepressant drugs trials using placebos.

The trial, performed in 11 U.S. medical centers, was randomized, double-blind, and placebo-controlled. Two hundred participants diagnosed with major depression took either 300 mg. of a standardized St. Johnswort extract three times daily, total of 900 mg, for four weeks or took identically matched placebo. The exact content of standardized constituents was not specified. The SJWE dose was increased to 1,200 mg. daily if there was insufficient improvement by week four. The trial duration was eight weeks.

The main outcome was assessed by the rate of change on a Hamilton Rating Scale for Depression (HAM-D), a questionnaire that rates the severity of depression in patients who are already diagnosed as depressed. The higher the score, the greater the depression. Most people with clinical depression score 14 or more on the HAM-D. Participants in this trial had a minimum score of 20 and a median score of 22 on the HAM-D. Five other rating scales were used as secondary measures. Patients with suicidal tendencies were excluded from the trial, as were those responding strongly to an initial placebo screening.

The authors split the patients improving in the trial into a response subgroup (HAM-D score ≤ 12 and ≥ 7) and remission subgroup (HAM-D score ≤ 7). Of the patients completing the trial, the total in the combined response and remission subgroups was 53.2% in the SJW group and 31.0% in placebo group. Each subgroup individually exhibited a strong trend showing St Johnswort to be more effective than placebo, but the results did not reach statistical significance ($p=.07$ for each subgroup). With another method of analysis using the total number of trial participants, rather than only those who completed the trial (usually a stricter standard of analysis), 14.3% of the patients taking St Johnswort experienced a remission of their depression,

while only 4.9% of those taking placebo did so. These results reached statistical significance ($p=.02$). These authors do not report whether the combined results of the response and the remission subgroups reached statistical significance, but the results are typical of drug and placebo responses in antidepressant trials. Mulrow reports in a meta-analysis of several hundred antidepressant trials that 50% of participants receiving antidepressant drugs typically respond with a 50% decrease in symptom scores in short-term trials (a similar parameter to that used for “responders” by Shelton et al.), and 32% those receiving placebo typically respond.

Using the stricter criteria of “remission” with a score 7 on the HAM-D, Shelton et al. may have also obtained results typical of those in standard trials of drugs, but their results are distorted by the pretrial screening of placebo responders. Shelton et al. began the trial with a one-week placebo test, and participants whose depression scores improved by 25% or more were excluded from further participation. Sixteen participants were removed from the trial. This method depresses the remission rates in both drug and placebo, because some of those removed from the trial would have attained remission in each group (Pablos-Mendez et al.). Shelton et al. mention in their article that this method is controversial, citing Pablos-Mendez et al., yet they fail to follow the recommendations in Pablos -Mendez et al. to include a discussion of the effect of the exclusion when interpreting results. In this case, one effect appears to have been to greatly depress the percentage of remission in the placebo. Typical remission results (HAM-D) for trials comparing the SSRI class of antidepressants to placebo are 35% for drug treatment and 25% for placebo (Thase et al.). Shelton et al. found only a 20.7% remission rate in the SJW group that completed the trial, and a 10.3% remission rate among those in the placebo group. It is likely that the method of prescreening also depressed the percentages of remission in the SJW group. Aberg-Wistedt et al. report that the best predictor of remission (HAM-D) in conventional drug treatment trials is early response, defined as 25% or more improvement in symptom scores within the first 2 weeks. Thus, Shelton et al. removed a group of participants who may have been most likely to respond to SJW treatment. Using the method demonstrated by Pablos-Mendez et al., dividing the excluded participants equally between the SJW and placebo remission groups, the percentages of remission among the SJW and placebo groups that completed the trial would rise to 27.5% and 17.8% respectively. Rather than mention

these considerations in their analysis of the trial, Shelton et al. compare the artificially depressed remission rate in the SJW group to remission rates in trials that do not exclude early responders, stating that “remission rates were very low.” The adjusted results are still lower in both the SJW and placebo groups than those in typical SSRI trials, but responses could have also been depressed by the patient selection criteria. All the patients were chosen in tertiary care settings rather than primary care, and the average duration of their depression was more than two years. Note that the remission rate in the St Johnswort group was more effective than placebo by about 10 percentage points in all analyses of the Shelton data, results which are identical with typical eight-week drug trials.

Adverse effects were experienced in 10% of participants (abdominal discomfort, insomnia in both groups). Headaches were reported more frequently in the SJW group (40% SJW vs 26% placebo). (Shelton et al.)

The authors discredited previous SJW studies claiming systematic biases in evaluation or reporting; nonstandard diagnostic practices, failing to use standardized symptom rating instruments (i.e., HAM-D), short study duration, low depression severity (18 on the HAM-D) inexperienced investigators, and other shortcomings. In the cases discussed below, the criticisms appear to be without merit.

At least eight previous St Johnswort trials have found the herbal extract therapeutically equivalent to various pharmaceutical antidepressants for mild or moderate symptoms, and with fewer side effects.

St. Johnswort vs tricyclic antidepressants

Hypericum extract was found equally as effective as imipramine (a tricyclic antidepressant) at reducing moderate depression in a randomized, double-blind, placebo-controlled trial in 18 centers with 263 partici-

pants. All participants were diagnosed with moderate depression. Trial participants had a minimum score of 18 on the HAM-D. For eight weeks, 100 patients took 350 mg. hypericum extract three times daily (total of 1050 mg. daily); 100 patients took 100 mg. imipramine split in three daily doses; 46 patients took placebo three times daily. Hypericum was as effective at reducing the HAM-D score as imipramine; comparable results were seen on two other depression rating

scales and quality of life was improved for both groups. For physical symptoms, hypericum was superior to placebo and imipramine. 22% of patients taking hypericum experienced side effects (7 with dry mouth, 8 nausea, 4 constipation, 3 headache, 4 palpitations, 1 dizziness), while 46% of the imipramine group reported side effects (42 with dry mouth, 12 nausea, 7 constipation, 6 headache, 6 palpitations, 7 dizziness).

The authors state “...hypericum extract may thus be considered an alternative first choice treatment in most cases of mild to moderate depression without psychotic symptoms.” (Philipp)

Another trial performed randomized, double-blind, in 40 German outpatient clinics in parallel fashion confirmed SJW efficacy compared to imipramine. 324 participants diagnosed with mild to moderate depression participated. All patients had a score greater than 18 on the HAM-D. 167 participants took 75 mg. imipramine twice daily; 157 participants took 250 mg. hypericum extract twice daily (total of 500 mg.) for six weeks. The HAM-D and other standard rating scales were significantly improved in both groups. The Hamilton anxiety subscale was improved in the hypericum group relative to imipramine. Authors state that hypericum may be better than imipramine in relieving anxiety associated with depression. In the imipramine group, 41 participants reported dry mouth; sweating dizziness, nausea, asthenia, and headache were also reported; 13 participants in the hypericum group reported dry mouth. The author’s state “This

Table 1
Comparison of results in Shelton et al. to typical drug trials

	Drug	Placebo
Response or remission (HAM-D ≤ 12)		
Typical antidepressant drug trial results (Mulrow et al.)	50%	32%
Shelton et al. Hypericum trial	53.2%	31.0%
Remission (HAM-D ≤ 7)		
Typical results for SSRI antidepressants (Thase et al.)	35%	25%
Shelton et al. -- All participants	4.9%	14.3%
Shelton et al. -- Trial completers	20.3%	10.3%
Shelton et al. Completers, adjusted for removal of early placebo responders (Method in Pablos-Mendez et al.)	27.5%	17.8%

hypericum perforatum extract is therapeutically equivalent to imipramine in treating mild to moderate depression, but patients tolerate hypericum better.” (Woelk)

Commentary

Tricyclic antidepressants are believed to cause long-term changes in the way nerve endings function. They produce a mild sedative-like effect by counteracting acetylcholine, blocking stimulant chemicals-serotonin and norepinephrine in and out of nerve endings. It takes two-four weeks for their effects to come into play. Many patients stop taking tricyclics due to adverse effects. Shelton et al. criticized Phillip’s trial for use of a low dose of imipramine. The trial used 100 mg imipramine (standard dose starts at 50-100 mg. and doesn’t usually exceed 150 mg). Philips et al. states in his published trial, in regard to the imipramine dose “The participating doctors would not have accepted higher doses for the treatment of moderate depression owing to the expectation of frequent and severe side effects with consequences for compliance (increased drop out rates from the study) in this patient population.” Woelk’s trial was criticized by Shelton et al. for low depression severity, but a HAM-D baseline score of 18 was required to participate in the trial. This was only 2 points on the scale lower than that in Shelton et al.

St. Johnswort vs SSRIs

Hypericum compared to the selective serotonin reuptake inhibitor (SSRI) fluoxetine (prozac) revealed equal effectiveness. This trial was randomized, double-blind in parallel groups. 240 people, diagnosed with mild to moderate depression, having a baseline HAM-D score of 16-24, participated in the study. 126 participants took one 250 mg. tablet twice daily (total 500 mg), and 114 participants took 20 mg. prozac, once daily, for six weeks. The HAM-D and other standard scales were used to assess results, in addition to laboratory tests. The authors state “Analysis of the main efficacy variable rejected the hypothesis of hypericum being inferior to fluoxetine. Thus the two treatments were confirmed to be ‘equivalent’ with regard to overall antidepressant affect.” Six hypericum patients reported GI disturbances; the prozac group reported 9 with agitation, 7 GI disturbances, 5 retching, 4 dizziness, 3 tiredness, 3 anxiety/nervousness, 3 erectile dysfunction. (Schrader)

Commentary

The new class of antidepressants—SSRIs (prozac, zoloft, paxil, luvox, etc.), are believed to exert a pronounced affect on 5-HT serotonin (serotonin is be-

lieved to affect depression, mood). SSRI’s are not proven to exert a significant advantage over tricyclics in regard to depression (Mulrow). SSRIs are believed effective in about 50% of people, compared to a typical placebo response of 32% (Mulrow). Standard dose for prozac starts at 20-60 mg. and usually doesn’t exceed 80 mg. daily. Schrader’s trial was criticized by Shelton et al. for low depression severity. A HAM-D baseline score of 16-24 participated in the trial (indicating mild to moderate depression), and the average was only 2 points lower than that in Shelton et al.

A press release from the American Herbal Products Association (AHPA) has criticized JAMA for printing an incomplete financial disclosure statement of Pfizer-information accompanying the study states that Pfizer, the pharmaceutical company that funded the study, is a manufacturer of both antidepressants and St Johnswort. According to the AHPA release, when the study was conducted Pfizer did not manufacture St. Johnswort. Pfizer recently acquired Warner-Lambert, which had a St. Johnswort product line, but Pfizer discontinued the product after the acquisition.

References

- Aberg-Wistedt A, Agren H, Ekselius L, Bengtson F, Akerblad AC. Sertraline versus paroxetine in major depression: clinical outcome after six months of continuous therapy. *Journal of Clinical Psychopharmacology* 20(6):645-652, 2000
- Mulrow C, Williams J, Trivedi M, Chiquette E, et al. *Treatment of Depression: New Pharmacotherapies. Evidence Report/Technology Assessment Number 7-Agency for Health Care Policy and Research.* <http://www.ahcpr.gov>
- Pablos-Mendez A., Barr R, Shea S. Run-in periods in randomized trials: implications for the application of results in clinical practice. *JAMA.* 279:222-225, 1998
- Philipp M, Kohnen R, Hiller K. Hypericum extract versus imipramine or placebo in patients with moderate depression: randomized multicentre study of treatment for eight weeks. *British Medical Journal* 319:1534-1539, 1999
- Schrader E, et al. Equivalence of St John’s wort extract (Ze 117) and fluoxetine: a randomized, controlled study in mild-moderate depression. *International Clinical Psychopharmacology* 15:61-68, 2000
- Shelton C, Keller M, Glenberg A, Dunner D, Hirschfeld R, Thase M, Russell J, et al.: Effectiveness of St John’s Wort in Major Depression: A Randomized Controlled Trial. *JAMA* 285(15):1978-1986, 2001
- Thase ME, Entsuah AR, Rudolph RL. Remission rates during treatment with venlafaxine or selective serotonin reuptake inhibitors. *British Journal of Psychiatry* 178(3):234-41, 2001

Woelk H. Comparison of St John's wort and imipramine for treating depression: randomised controlled trial. *British Medical Journal* 321:536-539, 2000

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