Products Marketed to People with Hepatitis C

CHAPTER 17

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Introduction

Many over-the-counter products are marketed to people living with *hepatitis C*. A number of claims are made about these products. At times, it can be hard to determine what to believe. Your western doctor may not be able to provide you with guidance because he or she may not be familiar or experienced with these products. Making a decision about whether to use one or more of these products can be challenging. In addition, there is no way to be sure how any one person will react to a product.

One of the most common complaints from western doctors about alternative products is there are little or no data to support their claims of effectiveness. The data that do exist is often from studies that were poorly designed. Claims based on such studies are considered invalid by most western doctors. For the most part it is true that many alternative products have not been adequately studied, but this situation is beginning to change. Manufacturers of some alternative products realize that in order to gain credibility in the western medical community, they need valid evidence that their products are safe and useful.

Some of the most common products marketed to people with hepatitis C are reviewed in this section. Many more are available that do not appear here. The inclusion or exclusion of any product should not be considered to deny or affirm its existence or effectiveness. The products we have selected are those people with hepatitis C seem to be most aware of and therefore ask about most frequently.

Ultimately, it is up to you to do whatever research is necessary to make an informed decision about whether to try a given product. This is especially important in deciding whether to take a product that has little or no study data available. We have included references to *clinical trial* data where applicable. We independently researched each product discussed. We also contacted the manufacturers of the products discussed to request information directly from them. In some cases, we did not receive the information we requested. Therefore, this information may not be complete.

Be sure to tell each of your healthcare providers about <u>all</u> the products you are taking. This will help ensure coordinated and safe healthcare.

Bee Propolis

Propolis is a sticky material produced by bees from plant parts. It is used as sealing material for the hive. Because it has significant antibacterial and antifungal activity, it has been used as a topical medicine for skin, ear, nose, and throat problems.[1] Propolis has *antiviral* activity, specifically to influenza and herpes viruses.[2] This antiviral activity is thought to be due to the *flavinoids* in propolis. These *vitamin*-like substances come from the plant materials picked up by the bees. Flavinoids also appear to be the active ingredients in the plant-based folk remedies used by traditional African medicine practitioners for the treatment of hepatitis.[3] No animal or human studies have been conducted on propolis as a treatment for hepatitis.

Colloidal Silver

Silver is a precious metal with many industrial uses. It has also been used medicinally for a variety of ailments for several centuries. Prior to the introduction of modern day antibiotics in the 20th century, silver-containing medicinals were used to treat a variety of infections. Some prescription silver products are still used to treat skin and eye ailments such as burns, warts, and eye infections. However, there are currently no prescription silver products that are meant to be taken internally (that is, ingested). Colloidal silver products consist of tiny bits of silver in a liquid base. Most colloidal silver products are intended to be taken by mouth, but some injection forms are available as well.

In 1999, the U.S. Food and Drug Administration (FDA) issued a ruling banning colloidal silver sellers from claiming any therapeutic value for the product. According to the U.S. National Center for *Complementary and Alternative Medicine*[4]: Colloidal silver products are not considered by the FDA to be safe or effective.

- Silver has no known function in the human body.
- The human body has no need for silver. Therefore, claims that people may have a "silver deficiency" condition are unfounded.
- There is no scientific evidence to support the many claims made about the effectiveness of colloidal silver for a variety of conditions.

Ingesting or injecting colloidal silver may cause serious side effects including seizures, kidney damage, stomach irritation, headaches, *fatigue*, and skin irritation. Equally important, colloidal silver may interfere with the body's absorption of certain medications including several antibiotics and thyroid *hormone* replacement medicine.

There is no evidence that colloidal silver has any benefits for people living with hepatitis C. But there is evidence that ingesting or injecting colloidal silver may cause physical harm.

Eurocel™

Eurocel™ is a proprietary herbal formula specifically marketed for the treatment of *chronic hepatitis* C by Allergy Research Group, a company that markets supplements to doctors and the public.

Eurocel™ contains the herbs Patrina villosa, Artemesia capillaris, and Schizandra fructus; the exact amounts of each ingredient are not disclosed. These common Chinese and Korean herbs have been used historically for the treatment of liver disease. The company cites unpublished data that the formula has been tested for toxicity in mice and found to be essentially nontoxic and non-mutagenic (it did not cause genetic changes in the animals tested).

The Allergy Research Group Internet site reports data from a small, unpublished pilot study involving ten people with hepatitis C. The participants were recruited from a clinic in South Korea. The patients were in different *stages* of the disease (between 3 and 20 years after diagnosis). All had elevated *ALT* levels and *HCV viral load*s. Participants were given two capsules (500 mg each) of Eurocel™ twice daily for a period of 6 to 24 months. Apparently, the herbal combination was stopped after HCV viral load dropped to 1,000 copies/mL in five patients who were followed with viral load testing for a period of six months. The follow-up data was not included in the report this author received.

No specific data was provided about ALT levels or other markers that were said to have improved. The report did not contain information about how many patients had low viral loads six months after stopping the herbal combination, or whether their ALT levels remained stable after stopping the product. If that data exist, it was not supplied by the company. However, they do state that the response to Eurocel™ is "an individual response."

This author was referred to a Korean physician, Dr. Ba, when Allergy Research Group was contacted. In speaking with Dr. Ba, he said he knew nothing about the study, nor that it was conducted in Korea. He did not have contact information for the healthcare providers who conducted the study.

Without the missing information, it is difficult to assess the effect of this herbal combination. Research data exists on the use of specific extracts of schizandra for hepatitis C (see *Chapter 11.2, Modern Chinese Medicine Therapeutics*)

for Hepatitis C. However, there is no way of knowing whether Eurocel™ capsules contain significant quantities of schizandrin B and C since the ingredients are not listed by quantity. Eurocel™ is expensive ($149 for a 30-day supply as of April 2008). Incomplete information on ten patients is not enough to back the company's claim that, "Hepatitis C viral titers plummet with Eurocel™."

God's Remedy

God's Remedy is a group of products advertised for the treatment of hepatitis C. The products are alcohol-based liquid extracts of plants. The company Internet site describes a "two step system" with certain products for "first time users" and others for "continued use." Products in the group include Pure Herbal Remedy™, Milk Thistle™, Hepacure™, and Immune Booster™.

The Pure Herbal Remedy™ formula is advertised as an *antioxidant* supplement. It is said to contain 14 herbs including burdock root, nettle, red clover bloom, ginseng root, echinacea root, yellow dock root, dandelion root, blessed thistle, schizandra, astragalus root, olive leaf, plantain, Oregon grape, psyllium, and milk thistle. The advertising language explains the chemicals found in these plants are potent antioxidants and stimulate the human immune system. Although this statement is true in that plant chemicals called flavinoids are highly potent antioxidants, not all plants contain flavinoids. With the exception of schizandra, astragalus, and milk thistle, the plants contained in Pure Herbal Remedy™ are not known for their high flavinoid content. There are no published studies looking at the effects of these plant-derived flavinoids on chronic hepatitis C.

The God's Remedy milk thistle product is available as a liquid extract or in capsules. Information about the silymarin or silybin content is not provided, so it is difficult to know the potency of these products. Silymarin is the active ingredient in milk thistle, and all the clinical trials involving milk thistle specify of the dose of silymarin. See *Chapter 14, Naturopathic Medicine* for additional information on silymarin.

Hepacure™ is another product sold by this manufacturer. It is claimed to be an "extract version of Hepatico™." (See Hepatico™ listing in this chapter for information about this product.) The advertising text for Hepacure™ refers to clinical trials with Hepatico™ in the Republic of Georgia and Russia quoting, "complete healing and restoration of all organs and functions" in 91% of 300 test subjects. They site further states, "Recovery from *cirrhosis* took place over 1 to 7 months depending on the complexity and stage of the disease." The text goes on to say the product has been researched and is safe for treatment of acute and chronic forms of *hepatitis A*, B, and C, cirrhosis, and *liver cancer*. However, there is no reference to the source of this information. It is also unclear where this product was researched and how it was determined to be safe.

As mentioned in the section under Hepatico™, none of the references mentioned were published studies. The only published study we found was an animal study looking at the toxicity of the plants in Hepatico™. The ingredients listed for Hepacure™ are very different from the original Hepatico™ formula. Hepacure™ is said to contain nettle, plantain, horsetail, yarrow, golden rod, chamomile, feikhoa batsu, fern, ekala, pau d'arco, cleaver, and mayapple in a base of milk thistle, dandelion, and turmeric root.

The Immune Booster™ formula contains goldenseal root, red clover blooms, yellow dock root, burdock root, witch hazel bark, wild American ginseng root, Capsicum fruit, pau d'arco bark, spirulina, and Echinaccea augustifolia root in an alcohol base. The Immune Booster™ formula text states, "Numerous studies have shown that these remarkable natural substances stimulate our immune system's ability to recognize and surround foreign matter and eliminate it at a cellular level." The only actual published data looking at the immune stimulating effects of these plants have been with echinacea, berberine (the active ingredient in goldenseal), burdock root, and pau d'arco (Tecoma curialis). The relative amounts of each botanical in the formula are not given, so it is difficult determine the immune stimulating activity of the formula.

The Energy Formula™ is no longer advertised as part of the two-step God's Remedy hepatitis C system, but it is still available. The online text describing the product states, "It replenishes the nutrients which are drained from your body

from hepatitis C and [a] weakened immune system." It is said to "diminish fatigue." The Energy Formula™ contains American, Korean, Siberian and Tienchi ginsengs, kola nut, damiana, and wild ginger root in an alcohol base. Kola nut contains *caffeine*. Various over-the-counter products that contain kola nut have been found to contain high amounts of caffeine. Because this is a liquid formula, the amount of caffeine in the product would be hard to regulate and difficult to label. If high amounts of caffeine are the ingredient producing the "needed boost throughout the day," green tea or another inexpensive source of caffeine may provide an economical alternative.

Hepatico™

The trademarked product Hepatico™ that had been marketed by Alta Natural Herbs & Supplements, Ltd. appears to be off the market at the time of this writing (Spring 2008). However, it may still be available through some Internet sites, so it is included here for your information.

Hepatico™ is a botanical compound producers claim has been used in Russia "for more than 150 years." It is a combination of three common plants (plantain, nettle, and immortelle) in a base of three other plants (turmeric, milk thistle, and dandelion root). Each capsule is said to contain 250 mg of a combination of the first three plants in 250 mg of a combination of the base herbs.

None of the three primary plants is commonly known to have any action on the liver or gall bladder. The base botanicals are known to have effects on the liver and *bile* ducts, but the doses in Hepatico™are low. The amount of Hepatico™ used in an unpublished study (discussed below) was one to two capsules three times daily. This means the amounts of the botanicals involved in the study were below the amounts commonly used in published research that has examined the individual action of turmeric, milk thistle, and dandelion root.

The information previously made available by the manufacturer includes a study done in Canada with 23 patients who had either *hepatitis B* or C, or both. The majority had chronic hepatitis C. Study participants were given one or two capsules of Hepatico™ three times daily (depending on the patient's weight) for a period of 20 to 40 days. At the end of the study period, four of 23 participants had normalization of their ALT levels, and three of 23 participants had normalization of their *AST* levels. Participants who experienced normalization of their *liver enzymes* had varying histories of hepatitis C infection from 2 to 24 years duration. There is no information about their individual disease progression. A second group of ten hepatitis C patients took Hepatico™ for the first month of a 7-month trial. Two had normalization of their blood ALT levels. The investigators reported the participants in this study had relief from digestive *symptom*s and insomnia, but they did not document when or for how long this occurred. The study gave incomplete information about the patients' medical conditions. The only other liver test conducted on participants was *GGT* levels, which did not change significantly during treatment. *Liver biopsy* results were not available.

It is unknown whether the claims for this product could be reproduced in clinical trials conducted in the United States. According to a study done in Canada (unpublished), improvement (normalization of ALT levels) occurred in only a small minority of patients.

Hepato-C™

Hepato-C™ is a botanical combination marketed by Pacific BioLogics. It contains 15 powdered herbs in capsule form. The manufacturer states, "Hepato-C™ is intended to be used to balance the total diet to help promote the strengthening of the liver." The manufacturer previously publicized a study of 11 hepatitis C patients on Hepato-C™ for nine months. Information on viral load levels and liver enzymes in these 11 people is inadequate to allow evaluation of the effects of the product. Follow-up viral loads were unavailable for seven of the 11 study participants. Ten people in the study were taking other substances (vitamins and other herbs) and receiving acupuncture treatments during the study. Liver enzyme levels were normal in five people at the end of the study period, but all of these people were taking other herbs and vitamins that were not specified. Three of these people had been on interferon or interferon plus *ribavirin* prior to taking Hepato-C™. According to product literature (May 2000), a few private practice and university-based healthcare

providers have agreed to conduct clinical studies with this product. As of April 2008, no information is available on the Pacific BioLogics Internet site to indicate whether these studies were conducted.

IP-6

Myoinositol hexaphosphate is a B vitamin combined with phytic acid, a naturally occurring substance found in certain plant fibers (grains such as rice are particularly high in phytic acid). As a naturally occurring substance, IP-6 is present in a number of foods including beans, brown rice, corn meal, and wheat bran.

Abulkalam M. Shamsuddin MD, PhD holds the U.S. patent for supplemental IP-6 (inositol and myoinositol hexaphosphate). IP-6 is also known as phytic acid or phytate. Dr. Shamsuddin's research has demonstrated immune enhancing and anticancer actions of IP-6 in the laboratory. IP-6 is the subject of several published studies on cancer in animals and cultured cell lines, but this author found only one study on the use of IP-6 in liver disease.[5] A study in rats that included IP-6 in their diet appeared to prevent the accumulation of fat in the liver that would otherwise have occurred because of a high-sugar diet. Whether this finding has any relationship to viral hepatitis is questionable because different factors are responsible for liver damage in chronic hepatitis C.

Regarding safety, IP-6 has been shown to reduce the activity of *platelets* (circulating substances that help form plugs to stop bleeding). Therefore, people with low platelet counts, or who are taking aspirin or other blood thinning medications should avoid using IP-6. Supplemental forms of IP-6 may also bind with *calcium*, magnesium, copper, *iron* and zinc and should, therefore, not be taken with food.

There is no evidence to date that IP-6 has any direct effect on chronic viral hepatitis.

Liv.52™ and LiverCare™

Liv.52™ is an Ayurvedic formula of herbs first introduced in the 1950's. It is currently produced and marketed under several names including LiverCare™. Although the LiverCare™ manufacturer's Internet site states there are over 168 clinical papers published on the use of Liv.52™, only 50 clinical and experimental (animal) studies were found by this author in a search of the medical literature.

The main ingredients of Liv.52™ are capers (Capparis spinosa), wild chicory (Cichorium intybus), black nightshade (Solanum nigrum), arjuna (Terminalia arjuna), yarrow (Achillea millefolium), Negro coffee (Cassia occidentalis), and tamarix (Tamarix gallica). All of these plants are recognized in the writings of traditional Ayurvedic herbal medicine as treatments for liver problems. The combination of these medicinal plants has been widely used and researched in India for over 30 years.

The animal studies reviewed showed clear evidence that Liv.52™ has an antioxidant-like effect on the liver. It prevented damage from chemical toxins in animals, and from alcohol in both animals and humans. However, only three studies appeared to have been done in people with hepatitis, and none of these involved people with chronic hepatitis C.[6, 7]

One clinical study evaluated 24 people with chronic active hepatitis B who were taking Liv.52™.8 A significant number of patients in this study had *jaundice*, *ascites*, and cirrhosis, all of which are *signs* of liver damage resulting from long-term infection. After treatment with Liv.52™, 58% of the study participants had significant decreases in their liver enzymes. The researchers considered this an improvement in symptoms. However, we cannot assume that Liv.52™ would have the same effect in people with chronic hepatitis C. First, HCV is a very different virus from the hepatitis B virus. Second, improved biopsy results need to be seen to prove improvement with chronic hepatitis C. Decreases in liver enzymes alone are not enough to prove efficacy. The authors cite an older published study that showed long-term improvement in people with chronic hepatitis who took Liv.52™ for nine months. However, this study was unavailable for review.

A separate study examined the effects of Liv.52™ on 188 patients with alcoholic cirrhosis. Study participants took Liv.52™ for two years. Among patients with the worst cirrhosis, those taking Liv.52™ had a higher death rate than those not

taking the supplement (23 deaths versus 11 deaths). It is unclear if Liv.52™ was related to this observed increase in death rate. An increased death rate was not seen in study participants with less severe cirrhosis.[9]

Because Liv.52™ has been extensively tested in animals and has been used clinically for many years, its lack of toxicity has been proven. There has been concern about the levels of the *toxic* metal lead found in certain Ayurvedic preparations. However, an independent laboratory analysis has shown that the level of lead in Liv.52™ is low, and the compound is generally considered safe.

Liv.52™ appears to be beneficial in treating liver disease and may play a role as an antioxidant herbal preparation in supporting the liver function of people with chronic hepatitis C. However, there is no clinical evidence (that is, no human studies have been done) that Liv.52™ has an antiviral effect on the hepatitis C virus (HCV), or that it can prevent or treat cirrhosis.

The standard dosage of Liv.52™ suggested by Ayurvedic practitioners is two tablets twice daily with meals. However, each individual's dosage should be adjusted by a qualified Ayurvedic practitioner.

Liverite™ Liver Aid

Liverite™ Liver Aid is a *nutritional supplement* containing vitamin B12, *phospholipids*, cysteine, and bovine liver hydrolysate (cow liver that has been broken down by enzymes). Many studies examining the effects of these preparations on liver cells have been published in the European and Japanese medical literature. However, human studies have failed to show any clear benefit in hepatitis.[10, 11]

Liverite™ Liver Aid contains an unlisted amount of *phosphatidylcholine*, a type of fat found naturally in food. Approximately 20 years of medical research exists on the effects of phosphatidylcholine on the liver. Phosphatidylcholine has been shown to have a protective effect on liver tissue in alcoholics and people who are exposed to toxins, large doses of liver-damaging pharmaceuticals, and viruses.[12] Most studies used a combination of intravenous preparations of phosphatidylcholine and oral doses of 450mg to 700 mg. Other studies used only oral doses of 1,350 mg to 2,350 mg per day for alcoholic liver damage or hepatitis. Studies of chronic hepatitis B patients taking phosphatidylcholine and steroid therapy showed improved liver biopsy results. *Acute hepatitis* B resolved more quickly in those taking 1,350 mg phosphatidylcholine daily compared to those not taking the supplement. Phosphatidylcholine has also been studied in people with severe liver disease. In these studies, phosphatidylcholine used both intravenously and orally produced a reversal of *fibrosis* or scarring of the liver and a return to normal *liver function tests*.[13] Whether Liverite™ Liver Aid is the best dose or source (practically or economically) of phosphatidylcholine is unclear.

Microhydrin™

Microhydrin™ is a liquid suspension of minerals (silica, *potassium* carbonate, and magnesium sulfate) and safflower oil in a base of purified water. The manufacturer claims this product lowers the surface tension and raises the pH of water (makes it more alkaline), and increases the absorption of nutrients from drinking water. The developer of Microhydrin™, Dr. Patrick Flanagan, claims its effect comes from the fact that the product carries extra hydrogen atoms and "acts as a powerful antioxidant." He has published studies with athletes showing the product has the effect of lowering lactic acid levels after heavy exercise. The manufacturer publicizes this product as part of a regimen to improve nutritional status and hepatitis C. Individuals with hepatitis C have given personal testimonials supporting this claim. At this time, there is no evidence from human, animal, or cell studies that indicates Microhydrin™ has any direct effects on hepatitis C.

MGN-3™

MGN-3™ is a molecule called an arabinoxylane that is extracted from rice bran. It has been tested in cancer studies and in small trials. The studies showed MGN-3 has the ability to enhance the immune response of cancer patients and to decrease the side effects of *chemotherapy* in studies with rats.[18, 19] There is clear evidence from papers published by Mamdooh Ghoenum, PhD and others that this compound increases blood levels of *natural killer cells* (a special type of immune cell). It also increases levels of gamma-interferon and another substance called tumor necrosis factor. Although the boost in *immunity* may possibly be useful in cancer therapies, hepatitis C is a different condition. In chronic viral infection, the immune system already makes too much tumor necrosis factor, which may be a large part of the problem in hepatitis C. To date, any direct effects of MGN-3 on hepatitis C are unproven.

MTH-68/B Vaccine

The Newcastle disease virus is found in chickens. It can be up to 100% fatal in fowl, but has no effect on humans. Dr. Laszlo Csatary developed a *vaccine* made from this virus, MTH-68/H. The vaccine has been used to treat a specific type of human brain cancer called glioblastoma.[20]

Beginning in the mid to late 1990's, Dr. Csatary and his associates have been conducting studies with another virus vaccine in people with hepatitis B and C. The vaccine contains an attenuated (weakened) form of the bursal disease virus and is called MTH-68/B. A study published in 1998 on MTH-68/B involved two groups of acute hepatitis patients, 43 with hepatitis B and 41 with hepatitis C. Half were treated with conventional treatment. The other half were given injections of the vaccine. Of those HCV patients on conventional treatment, 26% went on to develop chronic active (symptomatic) hepatitis. Of those given the vaccine, only 9% went on to develop chronic active hepatitis C. Of those who recovered, 79% on conventional treatment *relapsed* while only 32% of those who received the vaccine relapsed.[21]

In another study published in 1999, MTH-68/B was given to three patients with end-stage hepatitis B and C. All three patients experienced significant improvement that could only be attributed to the vaccine.[22] A search of the published medical literature conducted in 2008 found no additional publications on MTH-68/B since 1999.

Given that the research with the live virus vaccine (MTH-68/H) in cancer patients has proven to be free of toxicity, the attenuated virus vaccine (MTH-68/B) used in hepatitis research is also likely to be free from side effects. The MTH-68/B vaccine is not approved for use in the U.S.

Phlogenzym™

Phlogenzym™ is an oral enzyme therapy manufactured in Germany by Mucos Pharma. It contains proteolytic (*protein* digesting) enzymes and a vitamin from the flavinoid family called rutosid. It is primarily promoted as an arthritis remedy, but has also been promoted to treat kidney stones and cancer.

A 1997 clinical trial with hepatitis C patients in Egypt compared Phlogenzym™ to alfa-interferon and ribavirin.[23] Patients in the study were divided into four groups: 20 took ribavirin, 20 took interferon, 20 took Phlogenzym™, and 20 took a liver support protocol that consisted of vitamins and antioxidants. After four months, the researchers compared the results of the four groups. Phlogenzyme™ was reported to be more effective than interferon or ribavirin at lowering liver enzymes (ALT, AST, and GGT). It was also reportedly associated with a 50% reduction in symptoms including appetite loss, weight loss, fever, itching, fatigue, jaundice, and spider nevi (small broken blood vessels in the skin). Tolerance of Phlogenzym™ was rated as "good" in 14 patients.

A subsequent 2005 look-back study conducted in Germany to examine the effects of on Phlogenzym™ on the liver enzymes of patients with chronic hepatitis C reported very different results. Twenty-two hepatitis C patients were included in the study. They were taking six tablets of Phlogenzym™ per day for an average of 77 days. The researchers found that AST, ALT, and GGT did not change significantly during treatment. They further reported that 5 out of the 22 patients had to stop treatment because of side effects.[24]

With these conflicting results, it is unclear what (if any) beneficial effects are associated with Phlogenzym™ for hepatitis C. With no information about viral loads, the antiviral activity of this product is also unknown.

Sho-Saiko-To (SST)

Sho-saiko-to (also known by the trade name Liver Campo or by the Chinese name xiao chai hu tang) is distributed in the United States primarily through Honso U.S.A, Inc. This over-the-counter product contains a multitude of ingredients including "bupleurum root, pinellia tuber, scutellaria root, ginseng, jujube, licorice root, ginger, baicalin, baicalein, glycyrrhizin, saikosaponins, ginsenosides, wogonin, and gingerols" (as listed on the Honso U.S.A. Internet site). The manufacturer states that this is a classic Chinese botanical formulation. It has been used extensively in Japan for a number of years.

The manufacturer's site lists a number of publications citing research conducted primarily in animal models. Several of these papers report *antifibrosis* activity in rodent liver models.[25-28] However, a search of the published medical literature conducted in April 2008 revealed no clinical studies (that is, conducted in humans) on the safety or efficacy of sho-saiko-to for chronic hepatitis C.

Importantly, there have been several case reports of serious side effects related to the ingestion of sho-saiko-to. The most common of these serious side effects is a condition called *interstitial* pneumonitis.[29, 30] This condition is an inflammatory condition of the lung that can be fatal.

Sho-saiko-to should never be taken while on *interferon-based therapy* because of the risk of interstitial pneumonitis, a potentially fatal condition.

Also important for hepatitis C patients is a report of acute hepatitis (nonviral) caused by the ingestion of sho-saiko-to[31] and another report of a dramatic drop in platelet count (a condition known as thrombocytopenia *purpura*).[32] Sho-saiko-to is currently being studied in a phase II clinical trial in the U.S. to determine its safety and possible efficacy for patients with chronic hepatitis C.

Thymic Protein A

Thymic protein A was formulated by immunologist and research scientist Terry Beardsley, PhD. He currently holds the U.S. patent on this protein and is involved in research evaluating its use in immune disorders.

Thymic protein A is chemically identical to a protein produced by the human *thymus gland*. It was originally derived from the thymus tissue of calves, but is now produced with the technology of cell cloning (reproducing cells in the laboratory). It has been shown to be absorbed orally, a problem with other thymus proteins. It increase the body's production of CD4 cells (T-helper cells) and natural killer cells, the immune system's virus killing cells.[33]

One study evaluated the effect of thymic protein A on people with chronic fatigue syndrome (Epstein-Barr disease). Participants were treated with 12 mcg (micrograms) of thymic protein A daily for 60 days. Treatment resulted in significant Epstein-Barr viral load reductions of 50% or greater in 67% of patients.[34]

Thymic protein A has not been studied in hepatitis C. However, the use of another thymic protein, thymosin alfa-1, has been the subject of hepatitis C studies. In one study, people with HCV were treated with a combination of thymosin alfa-1 plus interferon or interferon alone for 26 weeks. A higher proportion of patients treated with the combined therapy cleared virus and had a normalization of ALT compared to patients treated with interferon alone.[35] Post-treatment liver biopsy results were better in the combined therapy group than in the interferon group. In the follow-up period, the biochemical response rate dropped to 14% and 8% in the combined therapy and interferon groups, respectively.

Thymosin alfa-1 is a 28 *amino acid* protein fragment and is much smaller than the 500 amino acid thymic protein A. Therefore, thymic protein A may work differently than the thymosin alfa-1. In general, a larger protein fragment (thymic protein A) would be expected to have a greater effect than a smaller protein fragment (thymosin alfa-1). Thymic protein A has been tested in mice, cats, and humans and has been found to enhance immune response to viral infections. To date, there are no published studies evaluating the effects of thymic protein A on hepatitis C infection. Thymic protein A is sold over-the-counter under the brand name of ProBoost™.

Ultraviolet Blood Irradiation

Ultraviolet blood irradiation (UBI) is not a product but rather a technique that was popular in the United States during the early 1930's as a treatment for poliovirus. UBI involves removing blood from the body and exposing it to ultraviolet light. After the discovery of the Salk vaccine for the prevention of polio and the advent of antibiotics in the 1950's, the use of UBI all but disappeared.

Recently, there has been a renewed interest in this technique. It has been now been reapproved by the Food and Drug Administration for the treatment of a specific type of cancer called cutaneous T-cell lymphoma.[36] This type of UBI is called photophoresis. It is currently being investigated in clinical trials for the treatment of *autoimmune* diseases such as arthritis. The UBI process is time-consuming (each treatment takes about five hours) and expensive. A 1959 published study described the use of this process to treat acute hepatitis A and B, but there have been no published studies on its use to treat hepatitis C.[37]

This process can destroy *white blood cells* if it is not done properly. Therefore, it should only be performed in a medical setting by a licensed doctor who specializes in this procedure. UBI is sometimes used outside of the United States for the treatment of chronic hepatitis.

Reasons for Using Over-The-Counter Products

People decide to pursue complementary and alternative medicine (*CAM*) treatments for a variety of reasons. You may have decided to decline western therapy at this time. On the other hand, you may have experienced a treatment failure. Or perhaps your doctor has advised you to follow a "watchful waiting" course (you are monitored for disease

progression but are not being treated). The reason for your interest in CAM therapy is not nearly as important as making sure whatever you decide to do is safe. It is extremely important to seek safe, clinically tested CAM treatments.

As you look into your options, realize that any treatment should have proof that it is effective at improving liver function and/or quality of life in people with hepatitis C. A product that has not undergone safety studies in animals or humans may not be a wise choice. Many botanicals (both western and traditional Chinese) have been shown to be harmful to the liver. Your first concern should always be to do no additional harm to your liver.

If you are on treatment and are having side effects from your medications, there are ways to reduce these symptoms. A licensed CAM provider can help you use botanical medicines, acupuncture, and supplements that are specific for the side effects you are experiencing. Their guidance can also help insure that whatever CAM therapies you use do not interfere with your treatment's antiviral, and/or immune-enhancing activities. Unfortunately, none of the products mentioned in this chapter have been shown to reduce side effects from interferon-based therapy.

Reasons for Not Using Over-The-Counter Products

Essentially, it is not your personal situation but the product that is in question here. If the manufacturer or provider cannot provide a reference to a published study documenting a positive effect in hepatitis C, you are taking a chance that it may not be safe and/or may have no beneficial effects.

Before you take anything, we urge you to consider checking with a licensed CAM provider who treats people with chronic hepatitis C. Many botanicals (both western and traditional Chinese) have been shown to be harmful to the liver. It is best to have someone trained in complementary and alternative medicine oversee your alternative treatments. He or she can work with your primary care doctor or *gastroenterologist*/*hepatologist*. Check with the American Association of Naturopathic Physicians (AANP), the American College for Advancement in Medicine (ACAM), or the American Holistic Medical Association (AHMA) for help in finding a qualified CAM practitioner. (See the *Resource Directory* for contact information.)

Over-the-counter products marketed to people with hepatitis C can be very expensive, especially when taken for months or years. Very few (if any) of these products are covered by health insurance.

You also need to be aware that there are no regulations governing the manufacture of these products. Therefore, it is often difficult to know if you are actually getting what is listed on the product label. Further, there is no assurance that you will get the same product from one bottle to the next. It is sometimes challenging to find reputable distributors for these products.

Summary

Many over-the-counter products are marketed to people with hepatitis C. While some of these products may benefit the user, there are very few documented studies on the effectiveness of these products. It may be difficult to find reliable advice on which products are or are not appropriate for you. Many western healthcare professionals are unfamiliar with these products, and are generally skeptical about their possible benefits.

It is very important that you learn everything you can about over-the-counter products you are considering taking. Your first priority should be insuring that a product is safe and not harmful to the liver. If you are considering using one of these products, you may want to consult with a qualified CAM practitioner before you make a decision. Remember, it is very important to discuss your use of any of these products with all of your healthcare providers. This will help insure your safety and maximize the possibility of benefit from all your treatments.

References

1. Marcucci MC. Propolis: chemical composition, biological properties and therapeutic activity. *Apidologie*. 1995;26:83-99.
2. Amoros M, Lurton E, Boustie J, et al. Comparison of the anti-herpes simplex virus activities of propolis and 3-methylbut-2-enyl caffeate. *J Nat Prod*. 1994;57(5):644-647.
3. Iwu M, Duncan A, Okunji C. *Dietary botanical supplements with antiviral and anti-inflammatory properties used in the treatment of liver disorders in traditional African medicine*. Complementary and Alternative Medicine in Chronic Liver Disease Conference. National Institutes of Health. Bethesda, Maryland. 1999.
4. National Institutes of Health, National Center for Complementary and Alternative Medicine. Backgrounder: Colloidal Silver Products. Rockville, Maryland. Updated December 2006. Available at nccam.nih.gov/health/alerts/silver/index.htm. Accessed April 25, 2008.
5. Katamaya T. Hypolipemic action of phytic acid (IP6): prevention of fatty liver. *Anticancer Res*. 1999;19(5A):3695-3698.
6. Patney NL, Pachori S. A study of serum glycolytic enzymes and serum B hepatitis in relation to Liv.52 therapy. *Medicine and Surgery*. 1986(XXVI);4:9.
7. Chawhan, RN, Talib SH, Talib VH, et al. Viral hepatitis in children. *The Medicine and Surgery.* 1976; 3, 9. [Note: This information was provided by an herb manufacturer, but is not available through the National Library of Medicine's database PubMed.]
8. Mukerjee AB, Dasgupta M. Cirrhosis of liver. Results of treatment with an indigenous drug Liv.52. *J Ind Med Prof*. 1971; 12:7853.
9. Fleig WW, Morgan MY, Hölzer MA. The ayurvedic drug LIV.52 in patients with alcoholic cirrhosis. Results of a prospective, randomized, double-blind, placebo-controlled clinical trial [Abstract]. *J Hepatol*. 1997;26(Suppl 1):127.
10. Fujisawa K, Suzuki H, Yamamoto S, et al. Therapeutic effects of liver hydrolysate preparation on chronic hepatitis - A double blind, controlled study. *Asian Med J.* 1984;26:497-526.
11. Sanbe K, Murata T, Fujisawa K, et al. Treatment of liver disease - with particular reference to liver hydrolysates. *Jap J Clin Exp Med*. 1973;50:2665-76.
12. Kidd P. Phosphatidylcholine: a superior protectant against liver damage. *Altern Med Rev*. 1996;1(4):258-274.
13. Freidman LS, Martin P, Munoz SJ. Liver function tests and the objective evaluation of the patient with liver disease. In: Zakim D, Boyer TD, (Eds.). *Hepatology: A Textbook of Liver Disease*. WB Saunders. Philadelphia, Pennsylvania. 1996:791-833.
14. Kahlon JB, Kemp MC, Yawel N, et al. In vitro evaluation of the synergistic antiviral effects of acemannin in combination with azidothymidine and acyclovir. *Mol Biother*. 1991;3(4):214-23.
15. Womble E, et al. The impact of acemannan on the generation and function of cytotoxic T-lymphocytes. *Immunopharm*. 1992;14:3-67.
16. Kelly G. Larch arabinogalactan. Clinical relevance of a novel immune-enhancing polysaccharide. *Altern Med Rev*. 1999;4(2):96-103.
17. Sweeney BF, McDaniel CF. Glyconutritional and phytochemicals in eight HCV-positive patients. Proceedings of the Fisher Institute for Medical Research. 1999;1(3):6-7.
18. Ghoneum M, Jewett A. Production of tumor necrosis factor-alfa and interferon-gamma from human peripheral blood lymphocytes by MGN-3, a modified arabinoxylan from rice bran, and its synergy with interleukin-2. *Cancer Detect Prev*. 2000;24(4):314-324.
19. Jacoby HL, Wonorowski G, Sakata K, et al. The effect of MGN-3 on cisplatin and adriamycin induced toxicity in the rat. *Gastroenterology.* 2000;118(4):4962. [Note: This information is not available through the National Library of Medicine's database PubMed, but a synopsis of the article was available at the time of publication at: www.jafra.gr.jp/sis-e.html.]
20. Csatary LK, Moss RW, Beuth J, et al. Beneficial treatment of patients with advanced cancer using a Newcastle disease virus vaccine (MTH-68/H). *Anticancer Research*. 1999;19(1B):629-634.
21. Csatary LK, Telegdy L, Gergely P, Bodey B, Bakacs T. Preliminary report of a controlled trial of MTH-68/B virus vaccine treatment in acute B and C hepatitis: a phase II study. *Anticancer Res*. 1998;18(2B):1279-1282.
22. Csatary LK, Schnabel R, Bakacs, T. Successful treatment of decompensated chronic viral hepatitis by bursal disease virus vaccine. *Anticancer Res*. 1999;19(1B):629-633.
23. Stauder G, Kabil S. Oral enzyme therapy in hepatitis C patients. *Int J Immunother*. 1997; XIII (3/4):153-158. [Note: This information was provided by the product manufacturer, but is not available through the National Library of Medicine's database PubMed.]
24. Huber R, Futter I, Goedl R, Rostock M, Lüdtke R. [Oral enzyme therapy for chronic hepatitis C--a retrospective analysis. Article in German.] *Forsch Komplementarmed Klass Naturheilkd*. 2005;12(3):144-147.
25. Ono M, Miyamura M, Kyotani S, Saibara T, Ohnishi S, Nishioka Y. Effects of Sho-saiko-to extract on liver fibrosis in relation to the changes in hydroxyproline and retinoid levels of the liver in rats. *J Pharm Pharmacol*. 1999;51(9):1079-1084.
26. Egashira T, Takayama F, Yamanaka Y, Komatsu Y. Monitoring of radical scavenging activity of peroral administration of the Kampo medicine Sho-saiko-to in rats. *Jpn J Pharmacol*. 1999;80(4):379-382.
27. Inoue T, Jackson EK. Strong antiproliferative effects of baicalein in cultured rat hepatic stellate cells. *Eur J Pharmacol.* 1999;378(1):129-135.
28. Shimizu I, Ma YR, Mizobuchi Y, et al. Effects of Sho-saiko-to, a Japanese herbal medicine, on hepatic fibrosis in rats. *Hepatology.* 1999;29(1):149-160.
29. Tomioka H, Hashimoto K, Ohnishi H, et al. [An autopsy case of interstitial pneumonia probably induced by Sho-saiko-to. Article in Japanese] *Nihon Kokyuki Gakkai Zassh*i. 1999;37(12):1013-8.
30. Sato A, Toyoshima M, Kondo A, Ohta K, Sato H, Ohsumi A. [Pneumonitis induced by the herbal medicine Sho-saiko-to in Japan. Article in Japanese] *Nihon Kyobu Shikkan Gakkai Zasshi*. 1997;35(4):391-5.
31. Hsu LM, Huang YS, Tsay SH, Chang FY, Lee SD. Acute hepatitis induced by Chinese hepatoprotective herb, xiao-chai-hu-tang. *J Chinese Med Assoc*. 2006;69(2):86-88.
32. Kiguchi T, Kimura F, Niiya K, Katayama Y, Harada M. Acute thrombocytopenic purpura after ingestion of Sho-saiko-to for hepatitis. *Liver*. 2000 Dec;20(6):491.
33. Beardsley T, Hayes SM. Induction of T-cell maturation by a cloned line of thymic epithelium (TEPI). *Proc Nat Acad Sci USA*. 1983;80(19):6005-6009.

34. Riordan NH, Jackson JA, Riordan HD. A pilot study on the effects of thymus protein on elevated Epstein-Barr virus titers in human subjects. Project RECNAC Wichita State University. Townsend Letter for Doctors. 1998;175:78-89. [Note: This information was provided by the product manufacturer, but is not available through the National Library of Medicine's database PubMed.]
35. Sherman KE, Sjorem M, Creager RL, et al. Combination therapy with thymosin alpha1 and interferon for the treatment of chronic hepatitis C infection: a randomized, placebo-controlled double-blind trial. *Hepatology*. 1998;27(4):1128-1135.
36. Edelson R, Berger C, Gasparro F, et al. Treatment of cutaneous T-cell lymphoma by extracorporeal photochemotherapy. *N Eng J Med*. 1987;316(6):297-303.
37. Olney RC. Treatment of viral hepatitis with the Knott technique of blood irradiation. *Am J Surgery*. 1959;90:402-409.