Herbal Medications - Issues Related To Their Use - Part III

Expires Tuesday, April 30, 2019 Nursing Craig V. Towers , M.D., FACOG

Objectives

1. Describe the primary reason for usage and the proposed mechanism of action for Black Cohosh, Chamomile, Ma Huang, Thyme, Iodides, herbal Quinine, and herbal Belladonna drugs.
2. Discuss which herbal products reviewed in this article that should be used with caution in patients with hypertension, cardiac disorders, diabetes, a predisposition for developing kidney stones, glaucoma, and emphysema.
3. State the potential for a drug / herb interaction in those individuals taking certain medications in conjunction with the herbal products discussed in this article.
4. Discuss which herbal products / natural remedies reviewed in this article that should be avoided by pregnant women.

Article

Herbal Drugs – Part III – Other Commonly Used Herbs and "Natural Remedies" / Products to Avoid in Pregnancy

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1. Describe the primary reason for usage and the proposed mechanism of action for Black Cohosh, Chamomile, Ma Huang, Thyme, Iodides, herbal Quinine, and herbal Belladonna drugs.
2. Discuss which herbal products reviewed in this article that should be used with caution in patients with hypertension, cardiac disorders, diabetes, a predisposition for developing kidney stones, glaucoma, and emphysema.
3. State the potential for a drug / herb interaction in those individuals taking certain medications in conjunction with the herbal products discussed in this article.
4. Discuss which herbal products / natural remedies reviewed in this article that should be avoided by pregnant women.

Introduction:

Parts I and II of this series discussed the medical, surgical, and drug interaction concerns regarding the top 14 herbal products purchased by individuals in the United States. This article will discuss a few other popular herbal products, as well as, review some of the products that can be purchased without a prescription that should be avoided or used with caution by women who are pregnant.

Before proceeding to the actual drugs themselves, it is important to briefly review how drugs might affect a pregnancy. A full discussion on each of these affects will actually occur in a future article; however, for now, some of the ways a medication could affect a pregnancy are as follows:

1. Drugs might cause birth defects.
2. Drugs might cause one of the baby's organs to not function properly leading to damage somewhere else.
3. Drugs might lead to problems that show up later in life.
4. Drugs might interfere with the function of the placenta (or afterbirth).
5. Drugs might interfere with labor itself or cause the uterus to contract.
6. Drugs might interfere with how the baby adapts to just being born.

Black Cohosh:

Black Cohosh is one of the top 20 herbal products purchased in the United States. It has several other names including Cimicifuga, Rattleroot, Rattleweed, Black Snake Root, Bugwort, Squaw Root, Bugbane, and Richweed. It is primarily used for treating symptoms of menopause, hot flashes, and premenstrual syndrome (PMS). Traditionally, this herb was placed topically on rattlesnake bites and was also used as an insect repellant, which can be seen in some of its other names.

Multiple studies have been performed to date, but only a few have been randomized or placebo controlled. However, most of the available studies show that it is effective in treating the symptoms of menopause and hot flashes (most of these studies used the preparation called Remifemin). The pharmacologic action is not completely understood; however, it appears that the active ingredient binds to estrogen receptors and simulates an estrogen effect. Most studies show that black cohosh does not change follicle stimulating hormone (FSH), estradiol, prolactin, or sex hormone binding globulin levels. Some studies have shown a decrease in the luteinizing hormone (LH) level after usage, others have not.

At this time, knowledge regarding potential drug interactions is lacking as well as any potential problems in usage with other common medical disorders. There are a few reports of the possibility that black cohosh can produce uterine contractions and some nurse midwives have used this herbal product for the purpose of promoting labor at term. In addition, because of the potential for stimulating estrogen receptors, pregnant women should probably avoid using this herbal product during pregnancy, especially if there is a risk for miscarriage or preterm labor.

Furthermore, it is uncertain whether black cohosh has any hormonal properties. Thus, postmenopausal women who use this herbal product to treat their estrogen deficiency symptoms need to be aware that there may not be any protective effect on the cardiovascular system or bones (for preventing osteoporosis).

Chamomile:

Chamomile is also one of the top 20 herbal products purchased in the United States. The true chamomile is called German chamomile and it has several other names including Chamomilla, Camomille, Pin Heads, Wild Chamomile, Manzanilla, and Matricaire. It is primarily used for treating inflammation of the skin, mouth, and throat and for the treatment of gastrointestinal tract and respiratory tract inflammation and colds.

A few studies have been performed to date, but most are not randomized or placebo controlled. One prospective, randomized, blinded, controlled study using chamomile mouthwash to treat oral stomatitis from 5-FU chemotherapy treatment did not reveal effectiveness. Efficacy in treating gastrointestinal or respiratory tract inflammation is unknown. Its proposed pharmacologic action is that it slows down the action of pepsin and may also slow the release of histamine by mast cells. This herbal product also contains hydroxycoumarin, which is a relative of the coumarin anticoagulants.

At this time, knowledge regarding potential problems in usage with other common medical disorders is lacking. There are case reports of severe allergic reactions (anaphylaxis) occurring in people with a history of hay fever or asthma induced by pollens, who used this herbal product. Therefore, these individuals should use chamomile with caution. In addition, this herb should probably not be used with other drugs / herbs that might promote anticoagulation (such as aspirin, non-steroidal anti-inflammatory drugs, ginkgo, ginger, ginseng, etc.) because of a potential additive effect (though no studies currently exist on this issue). No information is available regarding the use of this herb during pregnancy. However, again because of the potential for decreasing the ability of blood to clot, it is not recommended for use near delivery (primarily the third trimester).

Ma Huang / Ephedra:

Ma Huang or ephedra is a commonly purchased herbal product in the United States. However, not all purchases are for medicinal uses. Unfortunately, some individuals use this herbal product in an attempt to produce amphetamine-like drugs. It has several other names including Desert Herb, Cao Mahuang, Joint Fir, Zhong Mahuang, Yellow Horse, Sea Grape, Popotillo, and Teamster's Tea. It is primarily used for treating sinus congestion and cold symptoms and is also used by people as a "natural' weight-loss treatment.

Several studies have been performed to date but most are not randomized or placebo controlled. However, over 1000 reports of potential adverse occurrences have been registered with the FDA regarding the use of this herbal product, mostly regarding cardiovascular events. Other reports of potential adverse events have included kidney stones and hepatic injury. Ma Huang / ephedra contains several sympathomimetic alkaloids including ephedrine, pseudoephedrine, norephedrine, norpseudoephedrine, and methylephedrine. This means that this herbal drug has both alpha and beta adrenergic properties (as discussed in the article regarding the effects of over-the-counter decongestant drugs). Thus, it can produce a wide range of effects on blood vessels (causing vasoconstriction, which can lead to hypertension or vascular accidents), on the heart (causing an increase in the contractile force and producing tachycardia and possibly arrhythmias), on the liver (causing the breakdown of stored glucose), on the pancreas (resulting in a decrease in the release of insulin), and on the uterus (possibly producing contractions).

Because of these physiologic affects, the list of potential drug interactions is large. Ma Huang / ephedra should not be used with monoamine oxidase (MAO) inhibitors (such as phenelzine, tranylcypromine, selegiline, and furazolidone), anti-hypertensive medications, other decongestant medications (especially over-the-counter decongestants), and drugs that cause vasoconstriction (such as ergot alkaloids, isometheptene, and the alpha adrenergic agonists, such as methoxamine, metaraminol, and mephentermine).

Furthermore, people with hypertension, cardiac problems, diabetes, and a predisposition for developing kidney stones should avoid Ma Huang / ephedra. Several cases of myocardial infarction, stroke, and death have been reported with the use of this herbal drug. In addition, because of its potential serious side effects and erratic action, pregnant women should not use this herb; especially pregnant women with pregnancy induced hypertension (toxemia or pre-eclampsia), gestational diabetes, and those women at risk for premature labor.

Thyme / Thymus:

Thyme is a commonly purchased herbal product that comes from a plant with the scientific name of thymus vulgaris. This herbal product is also known as Red Thyme, White Thyme, Spanish Thyme, and French Thyme, and may also be called Thymus. It is primarily used in treating coughs and bronchitis.

Very few studies have been performed to date and essentially none are randomized or placebo controlled. Its proposed mechanism of action is that its constituents have antitussive, antispasmodic, and expectorant properties. The primary reason for discussing this substance is the potential for confusing this herbal product (that may be called "thymus") with "thymus" that comes from dried foreign animal tissue. These dried animal tissues (from the thymus gland of the animal) could transmit bovine spongiform encephalopathy (BSE), which is a variant of Creutzfeldt-Jakob disease. Creutzfeldt-Jakob disease is a severe degenerative central nervous system disorder that results in rapid mental and motor deterioration over a period of about 3 to 6 months that is fatal.

At this time, knowledge regarding potential drug interactions with this herbal product is lacking as well as any potential problems in usage with other common medical disorders. Thyme is also not recommended for use during pregnancy because of its uncertain pharmacologic action, lack of studies, and the potential risk for confusion with dried animal thymus.

Iodides:

Iodide medications at one time were available over-the-counter (OTC) as an expectorant agent (common names were potassium iodide or iodinated glycerol). However, the United States Food and Drug Administration (FDA) removed this product as an OTC drug because they were not found to be effective. Nevertheless, iodide drugs are still available in herbal / natural remedy products that can be purchased for treating symptoms of a cold or the flu. Currently, the only FDA approved OTC drug for use as an expectorant is guaifenesin or glycerol guaiacolate.

The purpose for discussing iodide is its potential affect if used during pregnancy. The fetal thyroid gland begins to concentrate iodine at 10 to 13 weeks gestation. The mineral iodine is critical for the production of thyroid hormones, whereas the chemical iodide can interfere with this process. Thus, the use of iodide agents can cause fetal thyroid gland dysfunction (when used after 10 to 13 weeks gestation). This dysfunction can lead to fetal hypothyroidism and the development of a fetal goiter. This risk probably requires extended use of the iodide drug; however, if iodides are not effective as expectorants, then their use in pregnancy is not prudent.

Quinine:

Quinine is another medication that in the past was found as an over-the-counter drug for the treatment of leg cramps, but was removed by the FDA because it was not found to be effective at the available dosages. However, quinine can still be purchased over-the-counter in natural remedies and as an herbal product. It has several other names including Cinchona, Jesuit's Bark, and Peruvian Bark. It is primarily used for treating muscle cramps (especially nocturnal leg cramps), fever, gastrointestinal disturbances, and as one of the treatments for malaria. It may also be found as an additive to some commercial beverages.

The purpose for discussing quinine is its potential affect on pregnancy. To some extent, this issue is controversial because of its use in treating malaria. In fact several articles have been published where quinine has been used and even recommended as a possible treatment for malaria in pregnancy. Conversely, quinine has been used as a drug to promote abortion. In fact, quinine was used as an abortifacient in the United States over 30 years ago and is still used in some parts of South America for this purpose. For the most part, quinine should be completely avoided during pregnancy because of a risk for causing miscarriage or stillbirth. Its only potential use in pregnancy would be in the treatment of malaria and this should only occur under the guidance of a physician with experience in treating this severe infection.

Belladonna Drugs:

Belladonna was another substance that at one time was available as an over-the-counter drug for use as a "drying agent" in treating cold and flu symptoms. However, the FDA also removed these agents from their OTC status because they were not found to be effective at the available dosages. Nevertheless, similar to quinine and iodides, these drugs can be found in several herbal / natural remedy products. They have many different names, some of which include Devil's Apple, Devil's Cherries, Jamestown Weed, Jimson Weed, Thorn-apple, Deadly Nightshade, Stink Weed, Datura Stramonium, Scopolia Carniolica, Mad-Apple, Angel Tulip, Angel's Trumpet, Stinkwort, and Locoweed.

As background, belladonna drugs have an anticholinergic effect and anticholinergic drugs have been around for thousands of years. The original substance came from a plant called the deadly nightshade plant. In the middle ages, this extract was used as a poison. This plant was later named Atropa belladonna. The atropa part was named after Atropos, the oldest of the Three Fates, and the one who cuts the thread of life. This substance was eventually isolated in the 1830's and was called atropine. Atropine was also found in a plant called Datura stramonium and soon it was determined that many different herbs contained substances related to atropine (such as scopolamine, hyoscine, and hyoscyamine, etc.). Belladonna in a way has become a catch-all word for most of the drugs in this category. The belladonna / anticholinergic drugs were found to affect the human body in many different places as listed below:

- Brain – causes sleepiness and forgetfulness
- Heart – causes tachycardia
- Intestines – slows down the muscle contractions of the intestines
- Eye – dilates the pupil
- Skin – stops sweating so the skin becomes dry and hot
- Mouth – dries up the mouth and causes thirst
- Bladder – makes urinating difficult

As can be seen, the belladonna drugs can affect many parts of the human body. Therefore, people who have heart disease, hypertension, liver disease, glaucoma, difficulties with urination, and chronic lung problems (such as emphysema, etc.) should use them with caution. Drugs that should be avoided or used with caution if the belladonna herbal products are used include prescription anticholinergic drugs (such as atropine or scopolamine, etc.), antihistamine drugs (prescription and over-the-counter), phenothiazine drugs (such as chlorpromazine, thioridazine, fluphenazine, etc.), and procainamide.

Regarding pregnancy, these drugs can cross the placenta and potentially affect the fetus. There are reports of these drugs causing fetal tachycardia, and they can also change the way the fetal heart rate looks when recorded on a fetal monitor (the tracing becomes flatter in appearance). Therefore, these drugs should be used with caution during pregnancy especially in the third trimester.

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Dr. Towers is currently Professor and Vice Chair of the Department of Obstetrics & Gynecology at University of Tennessee Medical Center Knoxville in the Division of Maternal-Fetal Medicine. He is still clinically active managing numerous high-risk pregnancies. He is also actively involved in research with over 90 publications in major medical journals. Though his research has spanned many areas in obstetrics, he has primary interests in drugs in pregnancy, infections in pregnancy, fetal heart monitoring, bleeding in pregnancy, and fetal lung maturity.

He has authored a book for consumers regarding the safety of over-the-counter medications that are used in treating the common cold entitled "I'm Pregnant & I Have a Cold – Are Over-the-Counter Drugs Safe to Use?" published by RBC Press, Inc. He is also one of the new Editors of the reference book for clinical care providers entitled "Drugs in Pregnancy and Lactation, published by Wolters & Kluwer.