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Hibiscus tea cut blood pressure as much as a single antihypertensive drug.

# Hibiscus Tea Lowers BP in Clinical Trial

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NEW ORLEANS — Quaffing three cups of hibiscus tea daily for 6 weeks resulted in a mean 7.2-mm Hg reduction in systolic blood pressure in mildly hypertensive or prehypertensive adults in a randomized, double-blind, placebo-controlled trial.

"This suggests regularly incorporating hibiscus tea into the diet may help

control blood pressure in people at risk of developing hypertension," Diane L. McKay, Ph.D., concluded at the annual scientific sessions of the American Heart Association.

The public health implications of a blood pressure reduction of this magnitude, if extended to a large population, could be profound.

The National High Blood Pressure Education Program Coordinating Committee has estimated that a mere 3-mm

Hg reduction in systolic blood pressure (SBP) would reduce the relative risk death due to stroke by 8%, death due to coronary artery disease by 5%, and all-cause mortality by 4% (JAMA 2002;288:1882-8), noted Dr. McKay, of the Jean Mayer USDA Human Nutrition Research Center on Aging at Tufts University, Boston.

She reported findings on 65 prehypertensive or mildly hypertensive adults who took part in a 6-week double-blind study in which they consumed three 8-ounce cups of hibiscus tea daily or a placebo beverage similar in color and taste.

Mean SBP dropped by 7.2 mm Hg in the herbal tea group from a baseline of 129.4 mm Hg, compared with a 1.3-mm Hg decline in the control group. Diastolic blood pressure (DBP) fell by a mean of 3.1 mm Hg from a baseline of 78.9 mm Hg and mean arterial pressure dropped by 4.5 mm Hg from 95.7 mm Hg at enrollment, although neither of these changes achieved statistical significance.

However, the herbal tea's antihypertensive effect was greater in patients with higher baseline blood pressure, Dr. McKay reported.

Among the half of participants whose SBP exceeded 129 mm Hg, the mean SBP reduction after 6 weeks of hibiscus tea consumption was 13.2 mm Hg, and the reductions of 6.4 mm Hg in DBP and 8.7 mm Hg in mean arterial pressure were also statistically significant, she said.

The intervention had no side effects or downsides. The participants found it easy to work consumption of three cups of tea into their daily life, Dr. McKay continued.

Dr. Robert H. Eckel observed that the blood pressure reduction seen with hibiscus tea in this trial is equal in size to the typical effect of a single antihypertensive medication. But he added that while the notion of hibiscus tea as a nutraceutical for blood pressure lowering is intriguing, a larger confirmatory study with longer follow-up is needed.

"At this point, to make a nutritional recommendation with these data would be far premature. Nevertheless, this is interesting," commented Dr. Eckel, who is past president of the AHA and professor of medicine, physiology, and biophysics and program director of the adult general clinical research center at the University of Colorado, Denver.

Dr. McKay and her coworkers conducted their randomized trial because earlier animal studies had suggested that *Hibiscus sabdariffa* L. has antihypertensive and antiatherosclerotic effects. Hibiscus contains flavinoids and phenolic acids that have potent antioxidant properties.

The study was supported by the Agricultural Research Service of the U.S. Department of Agriculture and by Celestial Seasonings. ■

A related video is at [www.youtube.com/InternalMedicineNews](http://www.youtube.com/InternalMedicineNews) (search for 63101).

## BRIEF SUMMARY - Consult full prescribing information before use.

TussisCaps®  
(Hydrocodone Polistirex and Chlorpheniramine Polistirex)  
Extended-Release Capsules

III

Rx only

### CONTRAINDICATIONS

TussisCaps® extended-release capsules are contraindicated in patients with a known allergy or sensitivity to hydrocodone or chlorpheniramine.

The use of TussisCaps® extended-release capsules are contraindicated in children less than 6 years of age due to the risk of fatal respiratory depression.

### WARNINGS

**Respiratory Depression** – As with all narcotics, TussisCaps® extended-release capsules produce dose-related respiratory depression by directly acting on brain stem respiratory centers. Hydrocodone affects the center that controls respiratory rhythm, and may produce irregular and periodic breathing. Caution should be exercised when TussisCaps® extended-release capsules are used postoperatively and in patients with pulmonary disease, or whenever ventilatory function is depressed. If respiratory depression occurs, it may be antagonized by the use of naloxone hydrochloride and other supportive measures when indicated (see **OVERDOSAGE**).

**Head Injury and Increased Intracranial Pressure** – The respiratory depressant effects of narcotics and their capacity to elevate cerebrospinal fluid pressure may be markedly exaggerated in the presence of head injury, other intracranial lesions, or a pre-existing increase in intracranial pressure. Furthermore, narcotics produce adverse reactions, which may obscure the clinical course of patients with head injuries.

**Acute Abdominal Conditions** – The administration of narcotics may obscure the diagnosis or clinical course of patients with acute abdominal conditions.

**Obstructive Bowel Disease** – Chronic use of narcotics may result in obstructive bowel disease especially in patients with underlying intestinal motility disorder.

**Pediatric Use** – The use of TussisCaps® extended-release capsules are contraindicated in children less than 6 years of age (see **CONTRAINDICATIONS AND ADVERSE REACTIONS, Respiratory, Thoracic and Mediastinal Disorders**).

In pediatric patients, as well as adults, the respiratory center is sensitive to the depressant action of narcotic cough suppressants in a dose-dependent manner. Caution should be exercised when administering TussisCaps® extended-release capsules to pediatric patients 6 years of age and older. Overdose or concomitant administration of TussisCaps® extended-release capsules with other respiratory depressants may increase the risk of respiratory depression in pediatric patients. Benefit to risk ratio should be carefully considered, especially in pediatric patients with respiratory embarrassment (e.g., croup) (see **PRECAUTIONS**).

### PRECAUTIONS

#### General

Caution is advised when prescribing this drug to patients with narrow-angle glaucoma, asthma, or prostatic hypertrophy.

**Special Risk Patients** – As with any narcotic agent, TussisCaps® extended-release capsules should be used with caution in elderly or debilitated patients and those with severe impairment of hepatic or renal function, hypothyroidism, Addison's disease, prostatic hypertrophy, or urethral stricture. The usual precautions should be observed and the possibility of respiratory depression should be kept in mind.

#### Information for Patients

As with all narcotics, TussisCaps® extended-release capsules may produce marked drowsiness and impair the mental and/or physical abilities required for the performance of potentially hazardous tasks such as driving a car or operating machinery; patients should be cautioned accordingly. TussisCaps® extended-release capsules must not be diluted with fluids or mixed with other drugs as this may alter the resin-binding and change the absorption rate, possibly increasing the toxicity.

Keep out of the reach of children.

**Cough Reflex** – Hydrocodone suppresses the cough reflex; as with all narcotics, caution should be exercised when TussisCaps® extended-release capsules are used postoperatively, and in patients with pulmonary disease.

#### Drug Interactions

Patients receiving narcotics, antihistamines, antipsychotics, anti-anxiety agents, or other CNS depressants

(including alcohol) concomitantly with TussisCaps® extended-release capsules may exhibit an additive CNS depression. When combined therapy is contemplated, the dose of one or both agents should be reduced.

The use of MAO inhibitors or tricyclic antidepressants with hydrocodone preparations may increase the effect of either the antidepressant or hydrocodone.

The concurrent use of other anticholinergics with hydrocodone may produce paralytic ileus.

#### Carcinogenesis, Mutagenesis, Impairment of Fertility

Carcinogenicity, mutagenicity and reproductive studies have not been conducted with TussisCaps® extended-release capsules.

#### Pregnancy

**Teratogenic Effects. Pregnancy Category C** – Hydrocodone has been shown to be teratogenic in hamsters when given in doses 700 times the human dose. There are no adequate and well-controlled studies in pregnant women. TussisCaps® extended-release capsules should be used during pregnancy only if the potential benefit justifies the potential risk to the fetus.

**Nonteratogenic Effects** – Babies born to mothers who have been taking opioids regularly prior to delivery will be physically dependent. The withdrawal signs include irritability and excessive crying, tremors, hyperactive reflexes, increased respiratory rate, increased stools, sneezing, yawning, vomiting, and fever. The intensity of the syndrome does not always correlate with the duration of maternal opioid use or dose.

#### Labor and Delivery

As with all narcotics, administration of TussisCaps® extended-release capsules to the mother shortly before delivery may result in some degree of respiratory depression in the newborn, especially if higher doses are used.

#### Nursing Mothers

It is not known whether this drug is excreted in human milk. Because many drugs are excreted in human milk and because of the potential for serious adverse reactions in nursing infants from TussisCaps® extended-release capsules, a decision should be made whether to discontinue nursing or to discontinue the drug, taking into account the importance of the drug to the mother.

#### Pediatric Use

The use of TussisCaps® extended-release capsules are contraindicated in children less than 6 years of age (see **CONTRAINDICATIONS AND ADVERSE REACTIONS, Respiratory, Thoracic and Mediastinal Disorders**).

TussisCaps® extended-release capsules should be used with caution in pediatric patients 6 years of age and older (see **WARNINGS, Pediatric Use**).

#### Geriatric Use

Clinical studies of hydrocodone polistirex and chlorpheniramine polistirex extended-release did not include sufficient numbers of subjects aged 65 and over to determine whether they respond differently from younger subjects. Other reported clinical experience has not identified differences in responses between the elderly and younger patients. In general, dose selection for an elderly patient should be cautious, usually starting at the low end of the dosing range, reflecting the greater frequency of decreased hepatic, renal, or cardiac function, and of concomitant disease or other drug therapy.

This drug is known to be substantially excreted by the kidney, and the risk of toxic reactions to this drug may be greater in patients with impaired renal function. Because elderly patients are more likely to have decreased renal function, care should be taken in dose selection, and it may be useful to monitor renal function.

#### ADVERSE REACTIONS

##### Gastrointestinal Disorders

Nausea and vomiting may occur; they are more frequent in ambulatory than in recumbent patients. Prolonged administration of TussisCaps® extended-release capsules may produce constipation.

##### General Disorders and Administration Site Conditions

Death

##### Nervous System Disorders

Sedation, drowsiness, mental clouding, lethargy, impairment of mental and physical performance, anxiety, fear, dysphoria, euphoria, dizziness, psychic dependence, mood changes.

##### Renal and Urinary Disorders

Ureteral spasm, spasm of vesical sphincters, and urinary retention have been reported with opiates.

##### Respiratory, Thoracic and Mediastinal Disorders

Dryness of the pharynx, occasional tightness of the chest, and respiratory depression (see **CONTRAINDICATIONS**). TussisCaps® extended-release capsules may produce

dose-related respiratory depression by acting directly on brain stem respiratory centers (see **OVERDOSAGE**). Use of TussisCaps® in children less than 6 years of age has been associated with fatal respiratory depression. Overdose with TussisCaps® extended-release capsules in children 6 years of age and older, in adolescents, and in adults has been associated with fatal respiratory depression.

##### Skin and Subcutaneous Tissue Disorders

Rash, pruritus.

##### DRUG ABUSE AND DEPENDENCE

TussisCaps® extended-release capsules are Schedule III narcotics. Psychic dependence, physical dependence and tolerance may develop upon repeated administration of narcotics; therefore, TussisCaps® extended-release capsules should be prescribed and administered with caution. However, psychic dependence is unlikely to develop when TussisCaps® extended-release capsules are used for a short time for the treatment of cough. Physical dependence, the condition in which continued administration of the drug is required to prevent the appearance of a withdrawal syndrome, assumes clinically significant proportions only after several weeks of continued oral narcotic use, although some mild degree of physical dependence may develop after a few days of narcotic therapy.

##### OVERDOSAGE

**Signs and Symptoms** – Serious overdose with hydrocodone is characterized by respiratory depression (a decrease in respiratory rate and/or tidal volume, Cheyne-Stokes respiration, cyanosis), extreme somnolence progressing to stupor or coma, skeletal muscle flaccidity, cold and clammy skin, and sometimes bradycardia and hypotension. Although miosis is characteristic of narcotic overdose, mydriasis may occur in terminal narcosis or severe hypoxia. In severe overdose, apnea, circulatory collapse, cardiac arrest and death may occur. The manifestations of chlorpheniramine overdose may vary from central nervous system depression to stimulation.

**Treatment** – Primary attention should be given to the reestablishment of adequate respiratory exchange through provision of a patent airway and the institution of assisted or controlled ventilation. The narcotic antagonist naloxone hydrochloride is a specific antidote for respiratory depression which may result from overdose or unusual sensitivity to narcotics including hydrocodone. Therefore, an appropriate dose of naloxone hydrochloride should be administered, preferably by the intravenous route, simultaneously with efforts at respiratory resuscitation. Since the duration of action of hydrocodone in this formulation may exceed that of the antagonist, the patient should be kept under continued surveillance and repeated doses of the antagonist should be administered as needed to maintain adequate respiration. For further information, see full prescribing information for naloxone hydrochloride. An antagonist should not be administered in the absence of clinically significant respiratory depression. Oxygen, intravenous fluids, vasopressors and other supportive measures should be employed as indicated. Gastric emptying may be useful in removing unabsorbed drug.

A Schedule CIII Narcotic.

##### For Medical Information

Contact: Product Monitoring Department  
Phone: 800-778-7898

Manufactured by:

Mallinckrodt Inc.  
Hazelwood, Missouri  
63042 U.S.A.

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