

Pharmacology Rounds

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Three Commonly Used Herbal Medications

St. John's wort, echinacea, and ginkgo biloba

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The use of herbal medications has increased tremendously in recent years; however, herbal medications are not necessarily safe or effective. Often, patients do not report the use of medicinal herbs to their health care providers; thus, clinicians must question patients about herbal preparations. This article will examine three of the most commonly used herbal medications—St. John's wort, echinacea, and ginkgo biloba—focusing on therapeutic uses, safety issues, and drug interactions.

ST. JOHN'S WORT

Also known as *Hypericum perforatum*, St. John's wort has been used for years in Germany as an antidepressant and anxiolytic agent.¹ In fact, physicians in Germany prescribe St. John's wort more often than they do any other antidepressant, including fluoxetine.²

The exact mechanism of action of St. John's wort is unknown; monoamine oxidase inhibition has been reported, but it has not been confirmed in vivo.³ Other possible mechanisms include inhibition of serotonin uptake and stimulation of γ -aminobutyric acid.²

The usual dosage of St. John's wort in clinical tri-

als has been 300 mg three times daily of a standardized extract (0.3% hypericin).² Rare side effects include photosensitivity, dizziness, dry mouth, and gastrointestinal disturbances.¹

Co-administration of St. John's wort with other agents that may increase serotonin concentrations (eg, serotonin reuptake inhibitors, pseudoephedrine, and monoamine oxidase inhibitors) should be avoided, because such use increases the risk of serotonin syndrome.³ No other significant drug interactions have been reported.

In Germany, where St. John's wort is used extensively, no drug-food interactions have been reported—despite the herb's proposed mechanism of monoamine oxidase inhibition. Therefore, restriction of tyramine-containing foods is not indicated.

Administration of St. John's wort should be avoided during pregnancy, because of reports of uterotonic properties.²



St. John's wort
Hypericum perforatum

ECHINACEA

Also known as *Echinacea purpurea*, echinacea—the most popular herbal product sold in the United States—has been promoted as an “immune booster” and is used for the treatment and prevention of common colds.² Postulated mechanisms of immune system stimulation include increased phagocytosis, leukocytosis, cytokine production, and complement activation.²

Echinacea is available in different formulations with variable dosing guidelines. Patients should follow

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package recommendations to ensure proper dosing.

Echinacea appears to be relatively safe, with few side effects, drug interactions, or toxic effects; however, concomitant use with immunosuppressant agents, such as prednisone or cyclosporine, may be antagonistic. Reports of immunosuppression with extended administration have led to the recommendation that continuous use of echinacea be limited to eight weeks or less.

Echinacea is not recommended for use in patients with AIDS. Because echinacea is an immune system stimulant, it will be ineffective in patients with decreased immune function or immunosuppression. Echinacea use should also be avoided in patients with tuberculosis, because immunostimulation can prompt the body's defense mechanisms to wall off the tubercular bacteria, leading to increased formation of abscesses and decreased antibiotic penetration of the infection.

GINKGO BILOBA

This herb is commonly used by patients to improve cognitive functioning and to increase peripheral blood flow for both intermittent claudication and peripheral vascular disease. In Germany, it is approved for the treatment of dementia.³

The extract of *Ginkgo biloba* consists of flavonoids, terpenoids, and organic acids that have multiple functions—they act as free-radical scavengers, they decrease the formation of thrombi (through inhibition of platelet-activating factor), they dilate arteries and capillaries, and they inhibit the release of inflammatory mediators. These actions are believed to increase both cerebral and peripheral blood flow, which may be the underlying mechanism for ginkgo's proposed effects.²

The usual dosage of ginkgo is 40 mg three times daily, or 80 mg twice daily, of a standardized extract (24% flavonoids, 6% terpenoids).¹ Ginkgo is well tol-



Echinacea
Echinacea purpurea



Ginkgo
Ginkgo biloba

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erated, and it has been associated with only a few mild side effects, including gastrointestinal disturbances and transient headaches.²

Because ginkgo has anticoagulant properties, its use should be avoided in patients taking warfarin, heparin, nonsteroidal anti-inflammatory agents, or aspirin.^{1,3} Ginkgo is believed to contain low concentrations of a known neurotoxin; therefore, its administration should also be avoided in patients with epilepsy and in those taking medications that lower the seizure threshold.³

Although the leaves of the *Ginkgo biloba* plant are relatively safe, the seeds are toxic.²

CAVEATS

Although studies have shown that these agents can be safe and effective, herbal medications are categorized as dietary supplements; therefore, proof of their safety and efficacy does not have to be submitted to the Food and Drug Administration. Furthermore, dietary supplements are not required to undergo a standardized manufacturing process, and they may not contain the stated ingredients. Patients should be cautioned that formulations of a specific herbal medication

may vary considerably from manufacturer to manufacturer, and only products that state on the label that the active ingredients have been standardized should be purchased. Patients should always follow the dosing guidelines printed on the label, because different formulations have different dosage requirements. ☞

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