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**File: ■ Methicillin-Resistant *Staphylococcus aureus* Infections (MRSA)
■ Staph Infection Support**

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RE: Herbs Offer Help in Treatment of MRSA Staph Infections

Yarnell E, Abascal K. Herbal support for methicillin-resistant *Staphylococcus aureus* infections. *Altern Complement Ther.* August 2009;15(4):189-195.

Methicillin-resistant *Staphylococcus aureus* (MRSA) infections are occurring more frequently; they have higher rates of mortality, cost more to treat, and result in longer hospital stays than do other *S. aureus* infections.¹ These infections are unlike other antibiotic-resistant infections in that they occur more often in the community in people with no exposure to health care institutions.² Herbal medicine offers two potential solutions: first, in some cases, herbs may be substituted for antibiotics altogether, which would help prevent the worsening of antibiotic resistance while controlling MRSA; and second, herbs can be used to augment the effect of antibiotics and even overcome drug resistance. This article discusses herbs that potentially have these effects.

MRSA can infect the skin, muscles, joints, and various organs. Most community-acquired cases are in skin or soft tissue, although the number of invasive infections is increasing.³ According to the authors, MRSA should be suspected with new-onset inflammatory skin lesions (e.g., impetigo, folliculitis, and furunculosis) that are very severe or resistant to therapy.

Green tea (*Camellia sinensis*) is among the few herbs that have been subjected to clinical trials that suggest that it can augment the effects of antibiotics in humans infected with MRSA. The authors cite a Japanese study in which MRSA clearance was significantly greater in subjects with MRSA treated with green tea and a larger trial, also in Japan, which suggested that nebulized green tea is a potentially safe way to help people with respiratory MRSA infections. Green tea acts in many different ways against MRSA. Several of its compounds, including epigallocatechin gallate (EGCG) and epicatechin gallate, show a range of resistance-modulating effects. The authors suggest that green tea should be strongly considered in the protocol with any patients with MRSA infection. It can be delivered as an infusion (1-5 g per cup of water, several cups daily), powder in capsules (10-15 g per day), topical in cream or ointment, or by nebulization of infusion of extracts dissolved in water.

Chocolate (*Theobroma cacao*) also contains significant levels of EGCG and other important molecules found in tea. Therefore, say the authors, it is reasonable to consider consuming 2-

4 oz of dark chocolate (at least 60% cocoa solids, but probably greater than 75% would be ideal) daily to reduce antibiotic resistance in MRSA.

The use of volatile oils presents a more directly antimicrobial approach to MRSA infections. Tea tree (*Melaleuca alternifolia*) leaf oil is the subject of clinical and preclinical research. The authors cite a randomized trial reporting that treatments with 10% tea tree cream intranasally and 5% tea tree oil topically, along with standard antimicrobials, were equally effective in reducing MRSA carriage. For MRSA skin infections, tea tree oil applied topically several times a day is recommended. Internally, as part of an anti-MRSA protocol, 2-5 drops of tea tree oil can be taken 4-5 times per day by people with normal liver and kidney function. The authors mention other volatile oils that have shown anti-MRSA activity in vitro and that might be appropriate to combine with tea tree oil: African geranium (*Pelargonium sidoides*), lemongrass (*Cymbopogon flexuosus*), thyme (*Thymus capitatus*), and lavender (*Lavandula* spp.). It should be noted that the internal use of essential oils should be under the care of a qualified health professional, medical grade essential oils should be the only kind taken internally, and the essential oils should be taken in a carrier substance (e.g., olive oil, ghee).

In cases of severe MRSA infection, antibiotics are required. Certain herbs can be used with antibiotics to enhance their efficacy and reduce antibiotic resistance. Ginsenosides from Asian ginseng (*Panax ginseng*) root have been mildly antistaphylococcal in vitro and significantly synergistic with cefotaxime and kanamycin against MRSA strains.⁴ American ginseng (*P. quinquefolius*) has shown similar effects and can be considered in the treatment of MRSA infections, say the authors. A typical dose is 1-3 g of powdered root three times per day or 3-5 mL of tincture three times a day. Pineywoods geranium (*Geranium caespitosum*), rosemary (*Rosmarinus officinalis*), and bugle weed (*Lycopus europaeus*) all have inhibited antibiotic efflux pumps, thus reducing antibiotic resistance, in MRSA.

Finally, garlic (*Allium sativum*) is recommended for patients with MRSA infections. Although the ability of garlic bulb to directly kill MRSA has been seen in vitro and in mice, no clinical trials are available. A typical recommendation for a patient with MRSA is to eat 5-10 fresh cloves of garlic per day (this may be intolerable to some people, but lower doses are not sufficient).

The authors include a detailed table with a proposed comprehensive approach to MRSA infections.

"Research on herbs to prevent or treat MRSA infection is a burgeoning field with many promising early results," write the authors. Although more research is needed, clinicians do have some natural options to add to their approach to MRSA infections.

—Shari Henson

References

- ¹Lode HM. Clinical impact of antibiotic-resistant gram-positive pathogens. *Clin Microbiol Infect.* 2009;15:212-217.
- ²Liu C, Graber CJ, Karr M, et al. A population-based study of the incidence and molecular epidemiology of methicillin-resistant *Staphylococcus aureus* disease in San Francisco, 2004-2005. *Clin Infect Dis.* 2008;46:1637-1646.
- ³Klevens RM, Morrison MA, Nadle J, et al. Invasive methicillin-resistant *Staphylococcus aureus* infections in the United States. *JAMA.* 2007;298:1763-1771.
- ⁴Sung WS, Lee DG. The combination effect of Korean red ginseng saponins with kanamycin and cefotaxime against methicillin-resistant *Staphylococcus aureus*. *Biol Pharm Bull.* 2008;31:1614-1617.

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