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Barbara, What's a Nice Girl Like You Doing Writing an Article Like This? : The Scientific Basis of Folk Remedies for Colds and Flu

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The Scientific Basis of Folk Remedies for Colds and Flu

Viral respiratory tract infections are extremely common. For example, there are an estimated 20 to 50 million influenza virus infections annually in the United States resulting in 24 million patient visits, 300,000 hospitalizations, and 20,000 to 50,000 deaths.[1] Various folk remedies have long played a complementary role in the management of these infections. Simply stated, these are to rest, stay warm, and drink plenty of fluids.

Most patients with influenza who die do so from complications of pneumonia. Rest is thought to decrease the risk of aspirating virus from the upper airways into the lungs. The soldiers most affected in the swine flu outbreak of 1976 in Ft. Dix, NJ, were just beginning basic combat training, a time of exceptional exertion.[2]

Fever clearly has a beneficial effect on the course of most infections.[3] In ferrets that were experimentally infected with influenza virus, significant inverse correlations were found between body temperature and nasal viral titers.[4] Furthermore, the suppression of fever either by shaving or by treatment with sodium salicylate prolonged viral shedding.[5] The treatment of rhinovirus-infected volunteers with antipyretics also prolongs viral shedding.[6,7] The mechanisms by which elevated temperatures inhibit viral replication are not clear but include enhanced immune function and direct inhibition of viral growth. Influenza virus grows best at 34 to 35°C and poorly, if at all, at temperatures > 37°C. Hence, staying warm may have a beneficial antiviral effect. More properly stated, the patient should probably stay in a warm environment; this will keep the airways at a higher temperature.

Proper hydration also appears to be important for loosening secretions. Influenza infection produces a severe tracheitis.[8] Early in the disease process, there are copious amounts of pulmonary secretions, which are associated with gaps in the tight junctions. This is followed by thicker secretions later on. The loss of ciliated epithelium emphasizes the need for hydration to improve the pulmonary toilet.

As best as I can determine, Moses Maimonides first wrote of the medicinal effects of chicken soup.[9] Based on the above adages, chicken soup would appear to be an ideal remedy. First, chicken soup is best consumed while sitting down. I have an image of my mother and both grandmothers telling me to "Slow down! Don't eat so fast! You'll ruin your digestion!" If the infected subject also had to prepare the soup using Mrs. Fleischer's recipe, cited in the article by Rennard et al in this issue of *CHEST* (see page 1150), additional "down time" would be assured. (By the way, this recipe is much too complicated for me.) Second, inhaling the warm steam of such a well-prepared delicacy would undoubtedly raise the temperature of the airways and help loosen secretions.[10] Finally, the consumption of large amounts of liquid would maintain hydration. Though not true for all medications, in this case if a little is good, then a lot would be better.

Rennard et al address another potential biological benefit of chicken soup on respiratory viral infections. Oy, what a manuscript! (I hope the reader takes Dr. Soffer's comments on previous chicken soup articles to heart while reading this one.[11]) They showed that extracts of chicken soup significantly inhibited neutrophil chemotaxis (migration) in a standard *in vitro* assay. The inhibitory substance was present in the chicken and in the vegetables. On a theoretical basis, it makes some sense that the inhibition of chemotaxis would be beneficial in reducing symptoms. Following viral infections, there is an influx of neutrophils to the infected site, which may be responsible for producing some of the local symptoms. This potential mechanism for the beneficial effect of chicken soup needs to be counterbalanced by the concern that the inhibition of chemotaxis may contribute to the increased bacterial superinfection seen in viral infections.[12] More importantly, as the authors point out, this is an *in vitro* study, and whether there are physiologically significant changes in neutrophil chemotaxis following the ingestion of chicken soup has not been demonstrated. One

possible method to determine this would be to measure neutrophil chemotaxis in a group of subjects, feed them chicken soup, and then repeat the chemotaxis measurements. (Even better would be to measure experimentally infected subjects' chemotaxis before and after chicken soup ingestion.) Volunteers for this study should form a line behind me.

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Thromboembolic Disease

Can Echocardiography Assist Management?

Despite the widespread use of thromboprophylaxis in high-risk situations, pulmonary embolism (PE) remains one of the most common life-threatening disorders. In fact, the prevalence of detected postmortem PE has not diminished during the last 3 decades.[1] It has been estimated that, despite adequate therapy with heparin and oral anticoagulants, between 0.5% and 1.0% of patients (or up to 100,000 individuals per year in the United States) will develop chronic thromboembolic pulmonary hypertension (CTEPH) following a (first) pulmonary embolic event.[2,3] The exact cause for this is unknown, although factors such as adequacy of clot resolution, the influence of inherited thrombophilia, or disorders in the fibrinolytic system all may play roles. Only a small minority of these patients may be identified at the onset of the condition, and adaptation of the therapeutic approach may help avoid the development of CTEPH in these patients.

Generally, the prognosis of patients with pulmonary hypertension is inversely related to the degree of pulmonary hypertension. Fewer than 10% of patients with pulmonary artery pressures >50 mm Hg will survive 5 years.[4] Currently, treatment for CTEPH may consist of (long-term) anticoagulant therapy and symptomatic relief of pulmonary hypertension using diuretics and vasodilators. Newer drug therapies, such as nitric oxide inhalation therapy and continuous infusion with prostaglandins, have shown promising results, and many patients will improve or remain stable for a prolonged period of time while receiving therapy.[5] Nevertheless, for those patients who show progression of symptoms, pulmonary thromboendarterectomy, which was developed by a group at the University of California at San Diego, is regarded as the definitive therapeutic option.[6] The technique is now used in many centers throughout the world. It was shown that the procedure led to an immediate and sustained reduction in pulmonary pressures and pulmonary vascular resistance values to normal levels.[7]

In this issue of *CHEST*, Menzel et al (see page 897) present the results of measurements using right heart catheterization and echocardiography in 39 patients before and after undergoing thromboendarterectomy. They demonstrate that the pulmonary vascular obstruction has a direct impact on both right and left ventricular function. This effect is a combination of flow-related, geometry-related, and complex humoral factors. Following pulmonary throm-

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