Upper Respiratory Infections and Beliefs

Harvard psychologist David McClelland advised 13 Harvard undergraduates to go to a psychic healer within 24 hours of the onset of symptoms of upper respiratory infection. The psychic healer saw each briefly and stated to each “you’re healed.” McClelland listed 32 symptoms for subjective assessment before and after “treatment” by the psychic healer and also measured salivary and serum immunoglobulin A before and after treatment. Nine out of the thirteen students who felt that their upper respiratory infections improved also demonstrated higher levels of IgA. Health service physicians were irritated at the results, and the study was repeated with University Health Service physicians telling the sick students that they would improve, but none saw any improvement.

COMMENT: We know from hundreds of placebo studies that significant potential healing effects can be elicited or enhanced by a positive belief system of many given subjects. Some authorities have opined that some degree of placebo effect can be detected in 70% of the population. In this study, although supporting statistical analysis is lacking, the healing effects of the psychic healer was far greater than that resulting from similar suggestions by physicians in the Health Service who did not believe that their suggestions would have any effect. Placebo effects are entrained to a much greater degree when the suggestions are made by a practitioner who is convinced of the likelihood of success. Exactly what mechanism establishes this healing “climate” is still not precisely identified, but every observant practitioner has seen the effect repeated time and time again. When field trials are done on a new antibiotic, for instance, the results of scores of practitioners are averaged, and the drug rep will tell his/her physicians that the new drug is 70% effective against certain bacterial strains. In point of fact, the field trials will have found the drug 50% effective in the hands of some practitioners and 90% effective in the hands of others. Why the huge disparity? The best explanation appears to be the nature of the doctor/patient relationship, the nature of the communication of physician to patient, and the subtle energy generated in the belief system entrained within the patient.

Respiratory Infections and Stress

Thirty percent of well children spontaneous harbor group A streptococci; 75% of well children harbor Mycoplasma pneumoniae; and 42% harbor pneumococci. Fifty-eight children from a daycare complex, mean age 4.3 years, were observed five days a week for signs and symptoms of respiratory infection and cultures for bacteria, Mycoplasma and viruses were obtained twice weekly and at the onset of illness. Stress was assessed by a modification of the Holmes-Rahe Schedule of Recent Experiences, and family assessment was obtained through the 30-item Family Routine Inventory. The magnitude of life change event scores (measures of stress) was strongly related to the duration of experienced illnesses (p<.01). Life change and the adherence to regular family routines were related to the severity of illness (both p<.05). Neither life-changing events nor family-routine experience were related to the growth of pathogens in health or disease.

COMMENT: We commonly assume that the presence of one of these pathogens is tantamount to disease. In this older – but carefully done – trial, severity and duration of illness were significantly more related to more chaotic family routines and stress changes than to the presence of known pathogens. While it’s not easy to get families to institute better stress management operating principles, we practitioners can take brief opportunities to counsel parents, especially if we understand those principles ourselves.

More on Respiratory Infections and Stress

For six months, 235 adults from 94 families were followed. High- and low-stress groups were identified by median splits of scores on the Life Events Inventory, the Daily Hassles Scale, and the General Health Questionnaire administered at the inception of the study and repeated during and after the six-month trial. The high stress group had a mean of 2.7 episodes of respiratory infection vs. 1.56 in the low stress group (p=.0005), and 29.4 and 15.4 symptomatic days, respectively (p=.005).

COMMENT: This study from the 1980s clearly connects stress with a higher incidence of respiratory infections. Numerous other studies have come to this same conclusion, linking the incidence of the common cold to stress as well. I do not know of studies, however, that have unequivocally found a lower incidence of infections in persons trained in meditation, relaxation techniques, or cultivation of positive attitudes. Typically, practice of these techniques is said to better manage stress. My clinical impression would certainly tend to confirm an inverse relationship between practice of these techniques and respiratory infection incidence, but persons practicing these psychological exercises also frequently have other lifestyle habits that could be helpful, including physical exercise, superb nutrition, and nutritional supplements.

Influenza and Stress

Two hundred and forty-six family members in 55 families kept logs of daily stresses; psychological instruments employed included the Family Adaptability and Cohesion Evaluation Scores, Family APGAR, and the Schedule of Recent Stressful Events. Those experiencing flu symptoms were assessed with viral pharyngeal throat cultures and comparison of acute and two-week, post-viral serum antibody titers using a fourfold rise as the threshold. The risk for influenza infection was significantly inversely related to family cohesion (p = 0.02) and adaptability scores (p = 0.002).


COMMENT: The attack rate of influenza, too, seems to be inversely related to stress. Better family cohesion and adaptability were inversely related here. We can't write prescriptions for family cohesion and adaptability, but gentle suggestions for family counseling for some of the most stressful family situations that we physicians observe might help in the overall statistical risk.

Influenza Vaccine Antibody Response and Loneliness

Antibody response to the influenza immunization was investigated in 83 first-semester, healthy university freshmen. Elevated levels of loneliness throughout the semester and small social networks were both independently associated with poorer antibody response to the vaccine. Those with both high levels of loneliness and a small social network had the lowest antibody response. Loneliness was also associated with greater perceptions of stress and negative affect, less positive affect, poorer sleep efficiency and quality, and elevations in circulating levels of cortisol. Only the stress data were independently associated with poorer antibody response to flu vaccine. Those with both high levels of loneliness and a small social network had the lowest antibody response. Loneliness was also associated with greater perceptions of stress and negative affect, less positive affect, poorer sleep efficiency and quality, and elevations in circulating levels of cortisol. Only the stress data were independently associated with poorer antibody response.

COMMENT: Numerous studies have established that those with smaller social networks and less "social support" are more susceptible to infection(s). Many of these studies highlight the greater incidence of the common cold in those with diminished social support. These college freshmen who evinced loneliness responded with a less robust antibody response to influenza vaccination. Family of origin experience in socialization may play significant roles in later susceptibility to infections including those of the respiratory tract.

Immune Responsiveness and Meditation

CD2+ (total T cell) counts are known to be increased immediately after VO2max-level exercise (exercise at the level of maximal O2 uptake). CD8+ suppressor cell counts are also known to markedly increase post-exercise. Pre-exercise and post-exercise CD2+, CD4+, and CD8+ counts were determined in six male runners after six months of daily meditation and in six non-meditating male runners. Total T-cell counts doubled after exercise in both groups. The significant increase in post-exercise CD8+ (cytotoxic suppressor) cell counts in controls was significantly less in meditators (2p = 0.04). CD4+ helper cell counts remained stable in both groups.


COMMENT: Meditation modified the suppressive influence of strenuous physical exercise on the immune system. Other studies (see below) strongly suggest that meditation enhances both chemical and cellular immunity. A larger question is why we do not take greater advantage of this possibility of preventing many infectious events or, at the very least, shortening the course of recovery by meditation training. It may be that submitting to meditation training is too much work for many in the population who believe that rescue by antibiotics proffered for episodes of infection is just too easy.

Meditation and Response to Influenza Vaccine

This controlled study evaluated 41 healthy subjects whose brain activity was assessed at baseline, followed by mindfulness meditation training in 25 subjects, while 16 in a wait-list group served as controls. At the end of the eight-week meditation training program, subjects in both groups were vaccinated with influenza vaccine. The mindfulness meditators, compared to controls, had significantly greater left anterior brain activity and significantly greater antibody response to flu vaccine.

COMMENT: These findings demonstrate that a short program in mindfulness meditation appeared to produce demonstrable positive effects on brain and immune function. The magnitude of increase in left-sided activation predicted the magnitude of antibody titer rise to the vaccine. The significance of increased left anterior brain activation is not clearly understood, and it would be premature to assume that increased brain activation played a causative role in the enhanced antibody response, but they were significantly associated. What was very clear was the enhanced antibody response to vaccination in the meditators.

Qigong and Cellular Immunity

Qigong is a type of Chinese psychosomatic exercise integrating meditation, slow physical movements, and breathing. Of 29 untrained subjects, 16 were allocated to qigong training (one-half hour daily) for 30 days and 13 to a non-training control state. The qigong group finished with significantly lower total white counts, eosinophil counts, and C5 complement compared to controls.


COMMENT: Lower white cell counts are generally considered indicative of enhanced immunity. My own simple-minded picture is that fewer cells can do the job if they are high-quality participants. This study found that after one month of practicing qigong, significant immunological changes occurred, with a consistently lower and broadly significant profile of these measures within the qigong practice group. Randomized allocation of qigong and control subjects was not mentioned. A more robust cellular immune system would seem to be desirable in better handling respiratory viral and bacterial threats and/or quicker resolution of bronchial infections once initiated. Other benefits attributed to qigong include lower anxiety and depression scores and higher T4 cell counts in HIV-positive patients, improved sugar control in diabetics, lower blood pressures in hypertensives, better control of symptoms in fibromyalgia and low back pain syndromes, and lessened premenstrual syndrome complaints.

Chronic Rhinosinusitis and Humming

Rhinosinusitis is inflammation and/or infection of the nasal cavity and sinuses above, below, and between the eyes that connect with the nose through tiny ostia (openings). Rhinosinusitis can be caused by bacteria, viruses, fungi (molds), and allergens. Chronic rhinosinusitis (CRS) is an immune disorder caused by fungi (Ponikau JU, et al. Mayo Clin Proc 1999; 74:877) in which the immune response produced by eosinophils causes the fungi to be attacked, leading to damage of the sinus membranes and resulting in full-blown symptoms. Gaseous nitric oxide (NO) is naturally released in the human respiratory tract; the bulk of that found in exhaled air originates in the nasal airways with significant production also taking place in the sinuses. Proper ventilation is essential for maintenance of sinus integrity, and blockage of the ostia is a central event in sinusitis. Concentrations of NO in healthy sinuses are high. Nasal NO is known to increase 15- to 20-fold by humming compared with quiet exhalation. NO is broadly antifungal, antiviral, and antibacterial. This is a case report in which a subject with sinusitis hummed strongly at a low pitch of about 130 Hz (about C below middle C on the piano) for one hour at 18 hums/minute at bedtime the first night and 60-120 times q.i.d. for the following four days. The technique was described as one that maximally increased intranasal vibrations, but less than that required to produce dizziness. The morning after the first one-hour humming session, the subject awakened with a clear nose and found himself breathing easily through his nose for the first time in over a month. During the following four days, CRS symptoms recurred mildly, but with much less intensity each day. By humming 60-120 times, four times per day (with a session at bedtime), CRS symptoms were essentially eliminated in four days. Coincidentally, the subject’s cardiac arrhythmias (premature atrial contractions) were greatly lessened.

COMMENT: I have not tried this technique for sinusitis, nor have I prescribed it. One case report is obviously not a controlled study. And given the nature of humming, I would guess it will never be studied in placebo-controlled, double-blind, crossover fashion. It would probably be very difficult to hum non-therapeutically! Given the high incidence of chronic sinusitis in our society and given the frequent lack of success of usually offered treatments, I would judge that surely nothing would be lost by trying this low-tech approach. The author hypothesizes that strong, prolonged humming increases endogenous nasal NO production, triggering antifungal action and eliminating the chronic sinusitis.

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