Psychoneuroimmunoendocrinology describes the unity of mental, neurological, hormonal, and immunological functions, addressing the impact of cognitive images of the mind (whatever its elusive definition) on the central nervous, endocrine, and immune systems. It encompasses biofeedback and voluntary controls, impacts on physiology of thought and belief, past/present stress, placebos, social relationships, and "energy medicine." This column highlights clinical applications of cogent studies from these arenas of holistic medicine in the new millennium.

**Allergies and Side Effects of Medications**

**Asthma and Breathing**

"Buteyko Breathing" teaches subjects how to reduce the depth and rate of respiration. Thirty-nine asthma patients, ages 12-70, were recruited and, after stratification for severity based on daily use of bronchodilators, randomly assigned to receive either general asthma education and relaxation techniques (including abdominal breathing) or a series of Buteyko breathing training sessions. Medication continued to be used as needed. At baseline and at three months, respiratory volume studies were completed with and without bronchodilator, and patients completed a quality of life questionnaire. At each evaluation, indices of resting ventilation, including end-tidal CO₂, one-second forced expiratory volume (FEV₁), peak expiratory flow (PEF), and minute volume were determined. End-tidal CO₂, FEV₁ and peak expiratory flow did not change in either group. Use of beta-agonist drugs fell 90% vs. 57% in Buteyko and educational groups, respectively (p=0.002), inhaled steroid use fell 49% and 0%, respectively (p=0.06=NS); minute volume decreased more in the Buteyko group (p=0.004), and quality of life scores were also significantly better.

**Asthma and Relaxation Training**

In sixteen recruited asthmatic adults, mean forehead muscle tension fell from 1.9 to 1.3 μv (p=0.02), blood pressure and heart rate fell significantly (p<0.01 and p<0.001), and FEV₁/FVC percentage improved from 78 to 83 (p=0.044) from baseline to post-training in those randomly undergoing eight sessions of relaxation training, consisting of autogenics, progressive relaxation, deep breathing, and biofeedback vs. routinely handled controls on a wait-list. Asthma severity in controls fell 42% vs. 69% in the training group, and inhaler use fell two percent vs. 46%, respectively.

**COMMENT:** Biofeedback-assisted relaxation training achieved a significant positive effect in these non-steroid-dependent asthmatics who, at post-treatment, were requiring much lower doses of medications. Untoward reactions to medications contribute to the growing mortality from asthma. Biofeedback treatment is not difficult to learn, and it supplies a persuasive record that convinces the skeptic. I have previously shared my enthusiasm for this technique, which has myriad applications.

**Allergy and Multiple Personality Disorder**

The author presents three case histories of patients with multiple personality disorder. One client was found to be allergic to citrus fruits in all personality states save one; the allergic response was abruptly terminated by switching to a different personality. The second client was severely allergic to cats, except in one personality state in which she could play with cats indefinitely with no rash, lacrimation, or wheezing. The third responded to cigarette smoke with marked dyspnea and asthmatic bronchospastic wheezing in one personality and was totally free of symptoms in a smoky environment in a second personality.

**COMMENT:** As astonishing as these cases appear to be in strictly conventional terms, there are probably only two rational responses. One, the author was dissembling and making up stories. Or two, allergy is not simply present in the immune system, and a great deal of mystery still exists.
about creatures called Homo sapiens. It behooves us all to observe closely, pay attention, and report "weird" phenomena to the rest of the medical world. Unfortunately, not all editors are open-minded, and observations that do not fit the current paradigm are often overlooked. Outstanding examples of observations dismissed by editorial disbelief include Fleming (penicillin, 1930s), Semmelweiss (hand washing and puerperal sepsis, 1870s), and Kekule (discovery of the benzene ring, 1870s). The late Hugh Riordan, MD delightfully describes many examples of medical and scientific disbelief in his trilogy, Medical Mavericks. Fortunately, the editors and publisher of TLDP are not burdened with this handicap.

**Dermal Allergy**

The authors report case histories of two known allergic subjects. In subject one, baseline Prausnitz-Kustner wheal reactions to intradermal antigenic challenge at 1:10 and 1:500 dilutions encompassed 62 mm². After hypnotic sessions, the reactions were reduced to zero. In subject two, baseline response of 33 mm² was reduced to 17 mm² at 1:10 dilution challenge after hypnosis; remaining dilutions gave a response of zero. No changes in cortisol levels occurred in either subject. Black S, Friedman M. Adrenal function and the inhibition of allergic responses to intradermal antigen challenge after hypnosis; remaining dilutions gave a response of zero. No changes in cortisol levels occurred in either subject. Br Med J. 1965 Feb 27; 1(5434):562-67.

**COMMENT:** The explanatory mechanism for these reported phenomena is not known. When experiments such as this are done by reliable and observant people, we can infer some conclusions even though a "mechanism" has not been demonstrated. Clearly, the mind and brain participate in the "outcomes-based" conclusion. Perhaps we should not lean so heavily on biomedical (body only) evidence, but move on toward bio-psycho-social-spiritual evidence.

**Hives and Intense Emotions**

In this classical 1950 study on a volunteer subject, after baseline measurements demonstrated no forearm skin response to mechanical stroking and exposure to very small amounts of pilocarpine and histamine, the subject was then engaged in a discussion of a disturbing topic, which caused the patient to feel abused and angry but helpless to do anything about the situation. At the height of her troubled state, repeat exposure to stroking, pilocarpine, and histamine caused a vigorous urticarial hive reaction. Soon thereafter, after calming words of reassurance, exposure to the stimuli yet a third time resulted in no reactions whatsoever. Graham DT, Wolf S. The pathogenesis of urticaria. experimental study of life situations, emotions and cutaneous vascular reactions. J Am Med Assoc. 1950 Aug; 143(16):1396-1402.

**COMMENT:** This is the emotion-body effect, analogous to the mind-body effect. Intense emotional trauma can precipitate organic processes, including plaque rupture (heart attack), congestive heart failure, and metastatic cancer recurrence. Practitioners so often ignore the emotional component of any disease entity. For instance, depression is a heart attack, but it is often ignored. When it is recognized, the most common response is pharmacological. The most therapeutic gambit would be to listen to the patient and invite emotional expression, as demonstrated in this next study.

**Asthma and Emotional Expression**

Of 61 volunteers with asthma, the mean percentage of predicted one-second forced expiratory volume improved from 64% at baseline to 76% four months later (p<0.001) in those randomized to write for 20 minutes a day for three consecutive days about their most emotionally traumatic life event; controls writing about mundane topics showed no change. These clinically relevant gains were far beyond those attributable to the standard medical care that all participants were receiving. Smyth JM et al. Effects of writing about stressful experiences on symptom reduction in patients with asthma or rheumatoid arthritis: a randomized trial. JAMA. 1999 Apr 14; 281(14):1304-9.

**COMMENT:** This frequently cited study also looked at benefits in patients with sero-positive rheumatoid arthritis. Smyth utilized the writing technique extensively researched by James Pennebaker. Psychologists and therapists have long observed the therapeutic benefits of emotional expression. The nearly 20% improvement in FEV₁ was highly relevant and would be welcomed by any pulmonologist instituting a new pharmaceutical regimen. The retesting at four months also undercuts the frequently heard criticism that mind-body and hypnotic effects are only transient.

**Hives and Expectation**

In this case report, a subject known to be prone to the development of hives was tested by striking the forearm with a small paddle, leading to the immediate development of a reactive hyperemia and development of an urticarial (hive-like) reaction in the area of skin touched by the paddle. Some days later, when the reaction had completely dissipated, the patient was again tested by being told that the paddle-blow experiment was to be repeated. On this second occasion, however, a sham blow was delivered to the arm by stopping the paddle about one-quarter inch from the skin. This resulted in the exact same reactive hyperemia and hive formation developing in the projected footprint of the blow, despite the fact that the skin had not actually been struck. Graham DT. The pathogenesis of hives: experimental study of life situations, emotions and cutaneous vascular reactions. Proc Ass Res Neuro Ment Dis. 1950; 29:987-89.

**COMMENT:** Hives are often not well understood, but are most often assumed to be of allergenic origin. This case was probably dealing with an extreme variation of the urticarial process called dermographism, in which even light pressure on the skin results in prompt development of hives. The obvious point of publishing this case history is to widen the thinking about the chain of events that leads to reaction in a target organ with apparently more than just the participation of the immune system. The belief system here is clearly implicated. The sham blow is in effect a placebo, because the patient anticipates or expects the blow to be real and imagines the result, which does indeed occur. To what extent are our allergic reactions limited to the immune system, and how are the mental and emotional systems integrated into this response? For someone whose bronchospasm has been triggered by exposure to a given inhalant, how much of his/her next episode on exposure is "real," and how much might be "imagined." We need to think more broadly, outside the proverbial box.
Asthma, Hay Fever, and Hypnosis

In this case history of a patient with hay fever and asthma, baseline measured reactions to intradermal testing with known allergens were recorded: grasses: 72 mm², trees: 50 mm², and spring flowers: 33 mm². Following seven hypnosis treatments, the patient had relief from hay fever and asthma symptoms, and reactive wheals on challenge were zero. The patient’s serum was then given to a non-allergic volunteer who, when challenged with antigen, responded with wheals of 69 mm² to trees, 36 mm² to flowers, and 0 to grasses. This showed that the patient’s serum still contained antibodies and that the decrease in whealing reactions in the patient was not due to a change in antibody levels.


COMMENT: Here again, a postulated mechanism is not offered. If hypnosis and suggestion can have such a powerful effect, however, we might be well advised to ensnare it in the lexicon of possible treatments for a wide variety of human ailments. The mind-body connection is real, even though it may be barely alive in the halls of conventional medical practice.

Contrast Medium Reactions and Emotions

A meticulous study of 228 deaths from reactions to administration of contrast media in radiological procedures concluded that “the most important factors in production of contrast media reactions are the patient’s fear and apprehension.”


COMMENT: Can “mind stuff” mitigate reactions to medications? This study, though not controlled in the usual sense, revealed strong self-evident trends regarding the connection between fear/anxiety and mortality in contrast-medium reactions in radiology. The mention of side effects is always a dilemma. Practitioners are legally and ethically bound to mention side effects when undertaking a new therapeutic option. The problem, of course, is the introduction of a negative image, which the already anxious patient tends to embellish, increasing the possibility of reactions. Psychoneuroimmunologists have suggested that possible side effects should be mentioned first, followed by emphasis of the likely benefits of a pharmaceutical, botanical, or neuraceutical in the conversation. Television ads for pharmaceuticals do just the opposite by mentioning the side effects and contraindications last, an order placement that psychologists tell us will tend to be remembered best by patients.

Robert Anderson is a retired family physician whose practice took a holistic turn as decades passed. He has authored five major books: Stress Power!, Wellness Medicine, The Complete Self-Care Guide to Holistic Medicine (co-author), Clinician’s Guide to Holistic Medicine (McGraw Hill, 2001), and The Scientific Basis for Holistic Medicine, (6th edition 2004), available from American Health Press, holos@charter.net. Anderson was the founding president of the American Board of Holistic Medicine, past president of the AHMA, former Assistant Clinical Professor of Family Medicine at the University of Washington, and is currently an Adjunct Instructor in Family Medicine at Bastyr University.

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