Allergic Toxemia

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One of the most baffling problems facing conscientious physicians today is the patient who complains of fatigue, for which no cause is apparent. No age bracket is exempt. In fact, in my experience, young adults are quite prone to this complaint. They often remark with both wonder and some resentment, that their parents and in-laws have more stamina than they. Children are not immune and many have difficulty in putting in a full, or even a half day, at school.

Lack of zest for food is common, as is inability to gain weight. In some instances adiposity, accompanied by periods of rapidly fluctuating weight gain and loss, is part of this state of chronic fatigue.

Some individuals are so worn out that the picture approximates prostration or even a so-called nervous breakdown. Characteristically, extra rest fails to provide relief and many are more fatigued after a long night's sleep, than before retiring.

This picture is often looked upon as the result of nervous tension and labeled as neurosis—which is sometimes the case. More often, based on this diagnosis, the administration of tranquilizers, energizers, pepper-uppers, such as the amphetamines, and thyroid on an empirical basis, leaves the patient more exhausted than before. Psychotherapy may result in a frustrated physician, psychiatrist and patient. The latter then feels inferior, hopeless and depressed. He loses faith both in the healing arts and in himself. He becomes either resigned, a chronic complainer or a pilgrim in search of the holy grail. Some individuals show a remarkable persistence in their search for relief—a truly commendable trait—for sometimes they find it. However, the road may be winding and rough—including many experiences and expenses in the paramedical field. During the process they often develop into saints or devils.

The point is this: many—all too many patients—are half alive. They have forgotten, if they ever knew, the pleasure of living without pathological fatigue. This is a fertile field for physicians, who must recognize these problems and be prepared to treat them.

Pathological fatigue has many causes: Malnutrition, endocrine dyscrasias, prolonged emotional tension or other stresses, inherited or acquired patterns leading to poor assimilation or metabolism of nutrients can all play a part. This paper will be devoted primarily to the importance of allergy and hypersensitivity.

TYPES OF ALLERGY

1. *Reaginic.* This embraces hay fever, asthma and atopic skin disorders. In all these conditions, skin tests are positive, and indirect tests via the Prausnitz-Kustner technique will reveal the presence of circulating antibodies in the blood serum. Resistance may be built up by injecting graduated doses of the offending allergens such as pollens, mold spores, house dust or other common inhalants. Unfortunately, skin reactions to foods are comparatively unreliable.

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2. *Non-Reaginic.*

a) Foods or inhalants acting as allergens may be pinpointed by a rise in pulse rate of 8 or more beats after contact with offending substances. In some instances the pulse acceleration may reach 20 - 40 beats per minute. The discovery of offending allergens is often complicated, and the original text of A. F. Coca should be consulted.[1] Suffice it to say that a specific tachycardia following inhalation or ingestion of allergenic foods or chemicals is suggestive. Tests by elimination and then resumption of contact are essential for the demonstration of clinical sensitivity.

3. Chemical contacts, responsible for what we term allergic fatigue, may be operative without producing a specific tachycardia. This of course confuses the issue. Nevertheless this possibility must be recognized and considered. Theron G. Randolph, of Chicago, has made a most important contribution in a stimulating monograph to our understanding of human susceptibility to the increasingly complex chemical environment in which we now live.[2]

IMMUNOLOGY AND BIOCHEMISTRY

As our knowledge of cellular chemistry and function increases, so does our wonder at the marvelous complexity of the thousands of reactions taking place simultaneously in living protoplasm. The more we learn, the more complicated cellular biochemistry becomes.

Under the direction of cellular genes, through the mediation of a multiplicity of enzymes, synthesis of specialized hormones takes place. These in turn influence chemical reactions.

New specialized cells are continuously being formed in all tissues, while dead and dying cells are dissolved and eliminated. For this process to continue at an optimal level, certain nutrients such as amino acids, fats, carbohydrates and minerals must be taken in, absorbed and utilized. In addition, a favorable cellular environment is vital. Protoplasmic poisons—either from the environment, or resulting from metabolism—must be detoxified and rendered innocuous.

Tissue health therefore depends primarily upon the optimum function of enzyme systems, hormones and detoxifying mechanisms. Naturally, avoidance of overwhelming concentrations of toxic substances, or of constant exposure to small amounts of these, is of paramount importance in the prevention of biochemical disorders.

An ideal agrarian economy theoretically provides food, fresh from fertile land, in quantity and quality sufficient to supply nutrient demands. The Hunzas are an outstanding example of the fine physiques and superb health resulting from such a situation. Their location, together with their simple methods of tilling their sparse but mineral-rich alluvial soil has produced some of the finest specimens of homo sapiens. Their isolation has protected them from refined foods and toxic chemicals with which modern civilization is abundantly supplied.

The immunological mechanisms involved in the allergic state are poorly understood. We do know that in atopic diseases, circulating antibodies are

demonstrable. Union of antigen with antibody attached to tissue cells results in the liberation of histamine. Mast cells and circulating basophiles contain the largest amount. Histamine produces increased capillary permeability, dilatation of arterioles, smooth muscle spasm and excessive activity of mucous and serous glands. It is probable that other histamine-like substances, serotonin and acetylcholine are also involved.

Heredity is a predisposing factor. Robert J. Williams, of Texas, has reported fascinating observations on inherited individual differences[3] Everyone has a highly selective inborn metabolic pattern, genetically determined. Some patterns are reflected in deficient catalytic enzyme systems, with resultant and widespread variations in the requirement for various nutrients. It is only logical to assume that such genetic influences account for the tendency of some individuals to develop allergic reactions.

Dr. Williams' thesis is substantiated and in part explained by the experiments and observations of Francis M. Pottenger, Jr.[4] He placed a group of cats on cooked food only and noted rapid physical degeneration, until the third generation was seldom able to reproduce its kind. Interestingly enough—along with increased susceptibility to many diseases and severe osteomalacia—the incidence of allergy increased from about five percent in normal cats to 90 percent in the third generation of deficient cats. When the few survivors able to reproduce were fed raw meat and milk, it took three generations before all stigmata disappeared.

These and other observations indicate that adequate nutrition is of vital importance in preserving a strong hereditary pattern as well as protecing the individual from stress and disease of other types.

ENVIRONMENTAL FACTORS

Modern man is exposed to a fantastic number of toxic chemicals which were either unknown or unimportant a century ago. This is particularly true in urban centers. Many of them are completely foreign to the human organism and therefore handled and detoxified with great difficulty—if at all.

The air he breathes may contain many chemical compounds including ozone, sulfuric acid, sulphur dioxide, hydrocarbons of various type, nitrogen dioxide, fluorides, carbon monoxide, lead, tar, pesticides and traces of kerosene and illuminating gas.

The water he drinks, although free from harmful bacteria as a rule, is frequently contaminated by alum, chlorine, fluorides, lead, insecticides and detergents.

The food he ingests is tainted by a great variety of chemicals. Insecticide residues include the chlorinated hydrocarbons such as DDT and the organic phosphorous group, of which malathion and parathion are typical examples. Other chemicals include fumigant residues, inorganic sulfur, arsenic, lead, chemical preservatives, colored chemical flavoring or sweetening agents, extenders, bleaches, softeners, nitrates and nitrites, lacquers, aluminum, tin and traces of plastic from food containers.

Modern man is also prone to dose himself with a great variety of biological and synthetic drugs, thus adding to the load of chemicals which he must detoxicate. Excessive use of tobacco and alcohol by susceptible individuals may lower resistance still further.

THE SPECIFIC ADAPTATION SYNDROME

From the foregoing it is not difficult to infer that I am discussing "allergy" in its broadest sense—including hypersensitivity and maladaptation to the environment as well.

What is termed allergic toxemia is really a state of marked, unexplained fatigue developing from repeated exposure to allergens or chemicals to which an individual reacts in an abnormal way. As a result of poor inheritance, inadequate diet, prolonged emotional or other stresses, Hans Selye's stage of adaptation or resistance has broken down.[5] As this merges into the state of exhaustion, clinical illness develops.

Interestingly, during the adapted stage, individuals are often stimulated by repeated contact with allergens or chemicals. They get a "lift" from their poison.

As so well described by Theron G. Randolph,[2]—"if chronic cumulative exposures to an offending substance are avoided, the following tends to occur: 1) "Hangovers," first accentuated, diminish and disappear as adapted or partially adapted stages revert to the original non-adapted stage. 2) Re-exposure to an isolated dose of such a previously avoided material then induces an immediate acute reaction which, a) *changes chronic illness to acute illness, and* b) *demonstrates the causation of many chronic syndromes.*

"Each subsequent widely-spaced specific exposure precipitates a similar acute reaction, but with oft-repeated doses, immediate post-exposure effects quickly taper off with the recurrence of a relatively symptom-free, specifically adapted state."

SYMPTOMATOLOGY

Symptoms were mentioned in the introduction, but cannot be stressed too much. Outstanding is disabling fatigue in spite of seemingly adequate rest. A most common complaint is this: "Doctor, I am worn out. I can't seem to take care of my daily tasks. Even if I get 10 hours of sleep, I am just as tired as when I went to bed—if not more so. I just can't understand it. A few years ago I had plenty of energy. What is wrong?"

If a thorough physical examination and laboratory work are within normal limits, the tendency is to label these complaints as psychosomatic and to prescribe tranquilizers or energizers. This is only natural, but in cases of allergic toxemia completely unsatisfactory for both patient and physician.

Further questioning will universally reveal other complaints. These include frequent headaches, chronic rhinitis, cough, eye irritation, repeated "so-called" virus infections involving the upper respiratory or gastro intestinal tracts; asthma, dermatoses, urinary, edema with rapid weight gain and loss, tachycardia, extra

systoles (palpitation), excessive perspiration, vague fear sensations, forgetfulness, mild mental confusion and depression, lethargy and inability to make decisions. Hyperactivity, particularly in children, should arouse one's suspicions. Manic depressive or schizoid symptoms may be caused by contact with food allergens or chemicals. In extreme cases stuporous states and even coma may suggest organic brain pathology.

In many instances the oral cavity is involved. Symptoms may include dry mouth, burning tongue, disturbed taste sensations, shooting pains, swollen, bleeding gums, dry lips, recurrent aphthous ulcers and sore throats. Whether or not a red, beefy scalloped tongue indicating vitamin B complex deficiency is primary or secondary is difficult to determine, but this is often seen.

DIAGNOSIS

Of most importance is a detailed history coupled with awareness and suspicion. Negative physical and laboratory findings tend to rule out obvious organic pathology. A family history of allergy is suggestive. A questionnaire such as that used by Randolph[2] is helpful.

Skin tests for inhalant sensitivities (pollens, mold spores and house dust) should be utilized, even though pollen allergy, unless severe, seldom causes excessive fatigue. (House dust and mold sensitivity frequently produce the fatigue syndrome.)

Pulse studies for tachycardia following foods, or contact with inhalants are important. Both are common causes of unexplained fatigue. In highly susceptible individuals, chemical contaminants in foods may be responsible for symptoms rather than the food itself. Differentiation is necessary by means of clinical tests with contaminated and uncontaminated foods.

Elimination for five days of foods suspected by pulse studies or history, followed by reingestion, may result in temporary relief of symptoms with subsequent exacerbation. The same applies to suspected drugs, though caution must be used in resuming those thought to be culprits, lest severe reactions be produced thereby.

Cosmetics, perfumes, dentrifices, soaps, plastics and all substances either scented or capable of giving off volatile fumes come under suspicion.

Among the most potent is illuminating gas, used for heating and cooking. According to Randolph, some patients are so highly suspectible, that the minute leakage from a disconnected gas stove may perpetuate symptoms.

When adaptation has almost completely failed, individuals may be allergic or hypersensitive to many or most foods, to the great majority of synthetic drugs and to most petro-chemicals—even in almost infinitesimal amounts. To disregard patients' statements that many foods and drugs disagree—just because the majority can tolerate them—is courting disaster, for physician and patient alike.

Patients with marked fatigue and suspected multiple sensitivities must at times be placed in a controlled environment. This can only be accomplished in a hospital. The room must be air conditioned, free from chemical contaminants,

including scented cleaning agents, and all plastics. In some instances a 5 day fast permitting only distilled water may be necessary. This allows the effect of food and chemical allergens to subside. The fast is broken with one uncontaminated food followed by another. If no symptoms develop, every-day food of the same type is permitted. The recurrence of trouble suggests chemical contaminants.

The variations on this theme, until major allergens are discovered, are multiple.

TREATMENT

This varies with the experience and ingenuity of the physician. Treatment may be outlined as follows:

1. Elimination and avoidance, insofar as that is possible, of suspected allergenic foods, inhalants or chemical contacts. In some cases an all-electric home in a clean atmosphere may make all the difference between health and invalidism.

2. Hyposensitization to pollens, mold spores and house dust. This is often effective, but in cases of allergic toxemia, overdosage may increase symptoms. In a few instances the minute amount of phenol used as a preservative may aggravate the complaints.

3. Endocrine support, including thyroid, pituitary, adrenal and sex hormones can be helpful if used judiciously after attention has been paid to the nutritional status.

4. Adequate nutrition is basic. This includes a high protein, high mineral and high vitamin intake which excludes major allergens. Discretion is essential. (One of my patients was eating blood-rare beef twice daily. In spite of this, her migraine headaches were primarily due to beef and she still showed evidence of pellagra.)

Powdered yeast is an excellent dietary supplement, yet many patients can not tolerate it because of allergic reactions. To force large amounts of this nutrient on allergic patients can be their undoing.

Nevertheless, when used with discretion, supplementation of a good diet with vitamins and trace minerals, including adequate zinc and magnesium, is of tremendous help in reducing allergic reactions. To rely on nutrition alone, is to deny patients the amounts of relief which may be obtained by a combination of approaches.

CASE HISTORIES

1. Mrs. B., age 54, complained of excessive fatigue accompanied by tachycardia, palpitation, colitis, neuralgic pains and emotional depression. She knew numerous foods and most drugs caused unpleasant reactions of various types. Tension and muscle spasms were relieved temporarily by chiropractic treatments. Physical examination was *not* remarkable except for dry skin, hypotension and a red, beefy tongue. The administration of vitamin supplements in addition to dietary suggestions produced much improvement. In spite of this, she was not well. Attacks of palpitation and extreme fatigue recurred at intervals. Illuminating

gas was suspected. In spite of the cost, upon advice her home was converted to electricity and she now enjoys better health than she can remember.

2. Rev. J. D., age 50. Chief complaint indigestion, simulating gastric ulcer for 3 years. X-ray studies negative. Physical examination essentially negative. Pulse range 64 - 102 with a sustained tachycardia during waking hours. Pulse studies revealed sensitivity, with pulse rise, to orange. Elimination of this food allergen resulted in complete disappearance of indigestion, and fatigue. He then had a pulse range of 60 - 70 over a twenty-four hour period. He has been symptom-free for four years. (Unfortunately most patients have multiple food sensitivities and are more complex.)

3. Mr. R. L., age 46. Complained of chronic cough and sneezing accompanied by fatigue, so severe that it was difficult for him to get through a business day. Physical examination revealed wheezing sounds audible several feet away. Pulse studies showed a pulse rise of 10 points following the first morning cigarette. He was advised to quit smoking. Much to our surprise, he did. In four days his rales and cough had practically disappeared. He had a resurgence of physical well being and energy such as he had never deemed possible. Occasional indulgence in one cigarette reproduces all his former symptoms.

SUMMARY AND CONCLUSIONS

Allergy or hypersensitivity to a large number of substances including foods, inhalants, and chemical compounds of the petro-chemical type will produce, in susceptible individuals, pathological fatigue which may be termed allergic toxemia.

This condition is much more common than is realized and is often confused with neuroses. It can and does cause severe disability, including the symptoms of what is called a "nervous breakdown," and even those of a psychotic nature. When such symptoms are encountered, exposure to illuminating gas should always be ruled out as the primary etiological factor, before psychiatric treatment is instituted.

Symptomatology, immunology, diagnosis and therapy of allergic toxemia are breifly discussed. A few case reports are presented.

More widespread recognition of this syndrome is essential for logical treatment of a common presenting complaint. Otherwise, incapacitating illness amenable to therapy may be missed and mistreated.

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