

# LRA by ELISA/ACT® CLINICAL UPDATE # 3

## *GI Permeability*

### **Gut-associated antigens and rheumatologic disorders**

There are numerous reports in the peer-reviewed literature, from clinical antidotes to double-blind controlled studies, implicating dietary and gut-associated antigens in the pathogenesis and promotion of arthritic disorders.[1-22] In most cases, the pathophysiology is mediated through Types 2-4 hypersensitivity/immunologic responses to dietary proteins, food remnants, chemical additives, bacterial products, and medications. Susceptibility to dietary and gut-associated immunologic responses that culminate in rheumatic disease is associated with:

- 1) the presence of specific genetically determined HLA class II antigens
- 2) impaired antigen handling by the gut mucosal barrier (decreased sIgA, defects in mucosal membrane integrity, etc.) with resultant hyperpermeability and increased antigen absorption
- 3) reduced digestive capacity (particularly achlorhydria and atrophic gastritis) and malabsorption
- 4) dysbiosis (intestinal microfloral imbalance/overgrowth syndrome)
- 5) inflammatory diseases of the gastrointestinal (GI) tract.[1, 20-31]

### **Antigens and arthritis**

Rheumatic tissues are sensitive areas to immunologic/antigenic insults upon the body, especially when specific genetically determined HLA antigens are present (HLA-DR4, HLA-B27, HLA-DR3, and HLA-DR8). These tissues are commonly targeted for immune complex deposition and immune complex-mediated inflammatory responses to antigenic challenges from infections, allergic reactions, Arthus reactions, and autoimmune disorders. The usual outcome from the resultant complement activation, inflammation, and tissue destruction is acute and/or chronic arthritis.[23,32-33] In classic rheumatoid arthritis (RA), synovial lymphocytes produce an altered IgG antibody(possibly as a response to a yet unidentified antigen) that subsequently stimulates an anti-IgG antibody (rheumatoid factor) and immune complex formation within the joint. The final result is a local immune response and joint inflammation.[23]

Except for when an IgE rheumatoid factor has been identified, the primary pathophysiologic mechanisms involved in RA and associated arthritic disorders are a delayed type immunologic response which requires an initiating antigen or antigens.[1,32-37] The most common antigens involved in such responses are of dietary, bacterial, and tissue (self) protein origin. The gut, through its constant exposure to dietary

and bacterial products, acts as a major source and portal of entry for these related antigens.[1-23, 32-34,38-43]

### **The gut as a primary portal of antigen entry**

The gut is a major portal of entry for foreign antigens into the body, especially those of dietary, bacterial, parasitic, and chemical (food additives, preservatives, pesticides, medications) origin.[38-43] Only an intact mucosal barrier protects the body from foreign antigen entry and systemic exposure. The mucosal barrier is made up of immunologic (sIgA, lymphoid elements, etc.) and nonimmunologic (mucous coat, mucous membranes, etc.) components. Entry into, and exposure of the intestine to dietary macromolecules and pathogenic bacterial antigens are minimized by a healthy/balanced population of host-friendly microflora and optimal digestive processes (particularly gastric HCl/pepsin activity). When the mucosal

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barrier, gut flora, and/or digestive processes are compromised in any way, normal antigen processing is disrupted, and the gut becomes exposed and hyperpermeable to large, antigenic molecules.[38] When these antigens enter the systemic circulation, they elicit systemic immune responses culminating in the formation of immune complexes, inflammation, and tissue/organ pathology as associated with RA and related disorders.

With this in mind, it is interesting to note that many patients with RA have been found to have;

1) increased intestinal permeability to antigenic macromolecules (dietary and bacterial) with deficient antigen handling by the gut (“leaky gut”); [1,26-28]

2)With Sjogren syndrome patients, a high incidence of chronic atrophic gastritis and achlorhydria; [1,29-31] 3) alterations in intestinal flora with a high incidence of Clostridium perfringens (dysbiosis); [1,20-22]

4) significant food allergic/intolerant reactions that either initiate or promote their arthritic inflammation.[1-19] Also, patients with inflammatory bowel disease (IBD), a disease in which arthritis is a common extraintestinal manifestation, have been shown to have increased gut permeability to macromolecules as well.[44-45]

Considering the preceding information, it is reasonable to conclude that a thorough diagnostic work-up for arthritis, acute or chronic, should include identification of known and potential offending gut-associated antigens. This is especially true for those antigens that induce delayed-type immune responses that can be controlled for and/or eliminated. These include foods and food additives, bacteria (*C. perfringens*, *Yersinia enterocolitica*) and medications found to be allergenic and intolerant to the patient. The Enzyme-Linked Immunosorbant Assay/Activated Cell Test or Lymphocyte Response Assay (LRA) by ELISA/ACT® is the most comprehensive test for an individual's delayed reactivity to as many as 400 substances including foods (dairy products, grains, vegetables, fruit, legumes, meat, fowl, fish, spices, oils, nuts, and sugars), environmental chemicals and toxic minerals, molds, medications, danders,hairs and feathers, herbs and additives and preservatives. It should, therefore, be indicated as a major part of any arthritis work-up, as should stool cultures to detect any arthritis-related pathogenic microorganisms.

Testing for compromised digestive function, intestinal permeability, and reduced antigen handling by the gut may also be indicated and should thus be included in a thorough arthritis evaluation. Some of the diagnostic tests helpful in this area include a Complete

Stool Digestive Analysis (CSDA), Heidelberg, and measures of intestinal and salivary sIgA.

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## Ten Ways to Save Your Life

### 1 Breathe deeply of smoke-free air.

Babies and healthy, long-lived people breathe deeply, each breath filling from deep in their diaphragm to the tops of their lungs. Lungs are hard to replace. Actively avoid poisons and particles from smoke and other air pollutants. Most of us breathe too little and too often. Yet we can relearn healthier breathing patterns with only a few minutes practice each day.

### 2 Eat whole, uncontaminated foods in moderate amounts.

We are largely what we eat. Whole, fully nutrient, uncontaminated food direct from the sea or the garden to your table is most healthy. Nutrient dense foods, from deep sea fish to biodynamic cereals; from seeds to sprouts; vegetable juices to fruit-nut shakes; from spices to fermented foods help rebuild and repair us daily so that we can remain vigorously healthy through a century or more or restore health from most chronic ills.

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### How well have we been doing?

John Knowles, MD, then president of the Rockefeller Foundation, summarized and prophesied the current dilemma, when, in the Spring 1978 issue of *Daedalus*, he wrote, "America is spending more and feeling worse." Current statistics about the health of Americans reinforce the validity of his analysis.

America is seventeenth in the world in infant mortality. This means that in sixteen countries a baby born today is likely to live longer than a baby born in America. In 1950, one in five Americans could expect to contract cancer; in 1970, the figure had reached one in four; in 1990, the figure increased to almost one in three and is still rising.

Over 40 million Americans have one or more of the 100 forms of arthritis. Another

### 3 Know your self and live harmoniously with yourself.

We each have a nature - laid back, activist, or methodical, for example. We should reflect on ourselves until we know ourselves well, then living well a life that conforms to our nature. Are we morning birds or night owls? Perky or droll? Vigorous or contemplative?

### 4 Exercise regularly and moderately.

Our bodies are made to move. In addition to stretching and limbering, movement causes life-sustaining electricity to flow. Remarkably, when we press or stretch our body, the connective tissue structure discharges electricity. Acupuncture may work through these pathways. We need to exercise for at least 30 minutes each day. People often report vigorous exercise to improve their concentration, enhance their problem solving ability, and elevate their mood. Try rhythmic exercise like Acupressure, Hatha yoga, Tai Chi, or Aikido or breath-coordinated walking.

### 5 Take anti-toxic active antioxidants.

We breathe contaminated air, and our water and food often lacks sufficient essential factors to keep up with life's demands. Intelligent supplementation with balanced, pure supplements (like vitamins A,B,C,D3, E, selenium, carotenes, flavonoids, and coenzyme Q10) that act like concentrated foods is the least expensive health insurance we can buy to overcome the "pollution tax" of modern society.

### 6 Laugh heartily each day.

"Laugh and the world laughs with you; weep and you weep alone" is all too true for most of us. And, when we remember not to sweat the small stuff and that it is all small stuff and we can not do much about the big stuff anyway, it is easier to laugh heartily, easily, and often.

### 7 Practice relaxation and active meditation.

The learned art of relaxation and of mental focusing are essential elements of a well-focused and composed life. As a 105-year-old vigorously healthy friend of ours said, "the first 35 years of my life, I practiced the abuse of life; since then, I have been learning the practical use of life. Which do you do?"

### 8 Appreciate your and others' successes...you deserve it.

### 9 Forgive your and others' failures

Most of us do the best we can under the circumstances until we know better. Today's problem or danger can be tomorrow's opportunity when we have the helpfulness, resilience, and endurance to take advantage of our challenges.

### 10 Be a little more well each day.

Step by step, the path to health is our rightful choice.© HSC, 1993



or immune deficiency disease. Over 25 million citizens report themselves to be chronically fatigued. And 30 million of us have depression or a thought disorder that impairs our daily function. Allergic and immunologic disorders afflict over 30 million people.

Each year, over 1 million heart attacks kill over 350,000 of the 50 million people with heart and vascular disease despite outstanding cardiac care technology. Trauma and violence continue to add a toll of over 100,000 deaths a year. Injury and violence account for 75% of all adolescent deaths; over 80% of this carnage is avoidable or preventable. Homicide and suicide among adolescents have doubled in the last generation.

One-third of all young people smoke cigarettes regularly, and an equal proportion report binge drinking. One-sixth of all young people report regular marijuana use, and over 2% report current cocaine use.

As a population, America is 2.4 billion pounds overweight and still gaining. The average man today weighs four pounds more than even his all too high weight in 1960. Obesity is a significant risk factor for certain cancers, heart disease, adult diabetes, and vascular disease.

To add further concern, we are also seeing a renaissance of chronic conditions that plagued our grandparents' generation. Tuberculosis<sup>1</sup>, for example, is again on the rise in many urban areas. Our analysis links these reappearing public health diseases to a decline in air, food, water, and living environment quality coupled with increased immune suppression and new strains of bacteria that are resistant to medications.

The current realities of health in America are indeed sobering. Our disease-reactive, symptom-driven approach, often successful

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1. The Institute of Medicine of the National Academy of Sciences reports that "emerging infections" issue an urgent warning that infectious diseases are becoming much more common and aggressive as antibiotic resistance among the "bugs" becomes more the rule than the exception. They warn of a possible pandemic in immune-compromised people.

in the arena of acute and trauma care, is proving sorely lacking in outcome effectiveness when applied to today's chronic care conditions. Why are we spending more and feeling worse? The chronic conditions that burden two of three adult Americans were essentially unheard of among the elders of our grandparents' generation.

In a thumbnail sketch of what has happened, the most significant changes in the conditions of our lives that contribute to our ever increasing susceptibility and hospitality to chronic illness are:

- We have changed the menu and generally decreased the quality of what we eat. The results of low-fiber, high-protein, high-fat, high-sugar, and high-chemical diets promote arteriosclerotic heart disease and strokes, hypertension, cancer, obesity, and autoimmune disease.
- Intensified, synthetic chemical-dependent farming strategies have depleted the soil of essential nutrients, rendering the crops we consume correspondingly less nutrient dense and renewing.
- Food processing and transportation further depletes food nutrient quality.
- Pollution of the air, crops, and soil from biocides exposes many of us to high levels of toxins that bioaccumulate and interact (within common classes) to suppress our immune and hormone function.
- Food adulteration and additives for taste and preservation further increase our intake of toxic chemicals.
- Family and work priorities that sacrifice opportunities for exercise, rest and enjoyment, cultivation of peace of mind, and other basic conditions of high-tech living impose a heavy burden of health eroding stress overload (distress).

## Contact

If you have any questions or would like more information about LRA by ELISA/ACT testing, please contact EAB's Client Services Department at 800-553-5472.