Association between systemic lupus erythematosus and Helicobacter pylori.

Yoshihiro Matsukawa

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*The Journal of Rheumatology* is a monthly international serial edited by Earl D. Silverman featuring research articles on clinical subjects from scientists working in rheumatology and related fields.
Effect of Ethnicity on Disease Activity in Systemic Lupus Erythematosus

To the Editor:

We read the recent article by Ghaussy and colleagues, comparing disease activity in patients with systemic lupus erythematosus (SLE) from 2 different ethnic groups, Hispanics and Caucasians from New Mexico. Our observations about it are the result of our combined experience with Hispanic patients with SLE from Texas (mainly of Mexican ancestry), from Puerto Rico, and from Spain, as well as from our interpretation of the literature.

A major concern in our view is that no information is provided about the ethnic background of the Hispanic patient subset studied. As we know, the Hispanic population in the US is heterogeneous (although language and culture are shared). There are, however, fundamental differences among various Hispanic subgroups; this variability is best expressed as differences in the estimated admixture proportions [Spaniard (European), Amerindian, and African] among the Hispanic subgroups.

Second, important differences in the clinical characteristics of SLE and its outcome among various Hispanic subgroups have been reported by our group and by investigators from GLADEL, a Latin American consortium for the study of lupus, which is prospectively recruiting and following SLE patients from different South and Central American countries. Moreover, we have prospectively compared a group of Spaniard patients with SLE and our Hispanic (Mexican ancestry) LUMINA patients, and found them to have a milder disease with lower levels of disease activity over time, suggesting that the larger the Amerindian genetic pool, the greater the severity of the disease among Hispanic patients. These data taken together suggest that it is critical to properly define the Hispanic subgroup studied before reaching conclusions that may not be valid beyond the patients in which the data were generated. Indeed, we suspect that the negative findings from the study may relate to the higher Spanish (European) background in the Hispanic patients those authors have studied than in our Hispanic LUMINA patients.

A third issue of concern relates to the relatively long disease duration of the patients studied; although disease duration was comparable in their Hispanic and Caucasian patients, it was adjusted for in the analyses, it is known that disease activity in lupus generally wears off over time, the first few years showing more active disease, when the large majority of severe clinical manifestations occur. Thus, studying patients later in their course may have precluded these investigators detecting differences in disease activity that may have been present earlier in the disease course; further, it is well known that disease activity may portend a poor prognosis, as we and others have shown, so these investigators could have assessed damage as indirect evidence that disease activity was in fact comparable earlier, but this was not done.

Fourth, although the authors refer to having studied a representative sample of their patients, the sampling frame is not provided. Moreover, by design they have excluded patients with disease severe enough to cause death shortly after onset, and numbers of deaths may have been unbalanced in the 2 groups; however, that cannot be concluded from the data presented.

Finally, while we agree that smoking is a toxic habit that may affect SLE, it cannot be categorized as abnormal illness behavior. The construct of abnormal illness-related behaviors as measured by the Illness Behavior Questionnaire refers to how patients cope with an illness and not to unhealthy behaviors such as smoking or drinking; indeed, our group has recently reported that abnormal illness-related behaviors may negatively influence disease activity in SLE. In short, it seems to us that the authors have reached conclusions that may not be applicable to the large number of Hispanic US patients with SLE.

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REFERENCES

Correspondence

Dr. Ghaussy, et al, reply

To the Editor:

We thank Dr. Calvo-Alén and colleagues for their interest in our study. We defined ethnicity as 4 grandparents of the same ethnic background, as defined in other studies. After our study had been completed, several reports were published suggesting that there are important differences in the clinical characteristics of systemic lupus erythematosus (SLE) among various Hispanic subgroups. As we stated in our discussion, this was one possible explanation why we did not find a significant difference in overall disease activity between Hispanics and Caucasians, as the majority of our Hispanic population had a Spanish background rather than a strictly Mexican ancestry. We believe our study gives additional support for the findings of Dr. Calvo-Alén, et al, that there are fundamental differences among various Hispanic subgroups; and we agree that future studies regarding Hispanics should provide information about the ethnic background of the Hispanic patient subset. The following paragraphs are a part of a discussion addressed to a reviewer in August 2003 regarding the complex history of New Mexican Hispanics.

As to the Hispanic ethnic makeup of New Mexico, it is somewhat complex. The earliest Spaniards in New Mexico came as soldiers without women; thus, the children of these soldiers were of mixed Amerindian and Spanish blood. However, the next generation saw a large influx of Spanish settlers including women; thus, there are many communities where there is largely Spanish (Mediterranean-European) blood with very little Amerindian blood. These are the people who call themselves “Spanish” in New Mexico. However, this is complicated by the fact that the Spanish settlers were accompanied by “Spanish” soldiers and laborers, many of whom were actually Indians recruited from the villages around Mexico City; thus, certain of the communities in New Mexico had considerable Indian blood. Finally, in the last 150 years there has been considerable Mexican immigration to New Mexico, particularly to the southern part of New Mexico. Cinco de Mayo, Mexican Independence Day, is a big celebration in southern New Mexico, but is unimportant in northern New Mexico because northern New Mexicans have no historical connection with the Mexican Revolution of Juarez. Thus, the northern New Mexicans actually are more “Spanish” than the southern New Mexicans, who tend to be more Mexican culturally and genetically. There are also language differences that reflect this; northern New Mexico speaks a dialect very close to 16th and 17th century Spanish rather than the more or less contemporary Mexican Spanish spoken in the south. Thus our population in this study was predominately northern New Mexican and was roughly 75% European-Mediterranean blood and 25% Amerindian blood.

Our study design, a case controlled study, has certain limitations and potentials for bias that are well known. Although not presented in this study, we did not find any significant difference in overall cumulative organ damage as measured by the Systemic Lupus International Collaborating Clinics/American College of Rheumatology Damage Index among the New Mexico Hispanic and Caucasian population with SLE. It is noted that the Illness Behavior Questionnaire does not consider smoking as an abnormal illness-related behavior. Cigarette smoking has been shown to be associated with increased disease activity in SLE, even after adjusting for ethnicity, as well as various aspects of SLE activity and outcome. We believe a detailed smoking history should be included and adjusted for when comparing disease activity and outcomes in SLE.

We appreciate the valuable insights of Dr. Calvo-Alén and colleagues and their significant contributions to the scientific literature.

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REFERENCES


Alitude and Giant Cell Arteritis

To the Editor:

Major interest has been directed to establishing etiological factors in primary systemic vasculitides. Interestingly, Mittal, et al recently described the potential influence of altitude in the disease development and relapses in a patient with Churg-Strauss syndrome.

Giant cell arteritis (GCA) is the most common primary systemic vasculitis in Europe and North America in people older than 50 years of age. Since genetic influences cannot explain the great variation in the incidence of GCA in different parts of the world, we investigated the potential role of altitude as a geographical factor that might be implicated in the incidence of GCA in the Lugo region of Northwest Spain. However, when we assessed the altitude of the site of residence in 210 patients from that region, we could find no differences in disease incidence related to this variable. Also, in a reappraisal of relapse of the disease, we confirmed what had been reported. We observed that relapse in Lugo patients occurred mainly when prednisone dose was less than 10 mg/day, and it generally presented as polymyalgia rheumatica or was associated with headache or asthenia. We could find no implication of the altitude of the site of residence in the incidence of relapse of GCA. Nevertheless, since the range of altitude in the Lugo region is not very broad, additional studies in regions with broader ranges of altitude would be required to definitively exclude the role of this factor in the development of GCA.

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Drs. Mittal and Maddison reply

To the Editor:

We read with interest the letter from Llorca, et al, in which they quoted their studies that showed no apparent influence of altitude on the incidence of giant cell arteritis in Northwest Spain.

We presume that the subjects they studied were physiologically acclimatized to altitude. This may explain the lack of effect. By contrast, we felt that it was the rapid ascent to high altitude that was a major factor in exacerbating the effects of underlying vasculitis in the case that we described, as has also been reported in people with ischemic heart disease.

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Reactivity of IgG Antibody with Cyclic Citrullinated Peptide Occurs Through the F(ab)′2 Part of the Ig Molecule

To the Editor:

Recently, a test was developed for the detection of antibodies reacting with cyclic citrullinated peptide (CCP), which is useful for the diagnosis of rheumatoid arthritis (RA)1,2. The anti-CCP assay has gained interest in the rheumatology community because it is reported to show a higher specificity for RA than IgM rheumatoid factor, and this can be determined early in the course of disease. Although numerous studies on anti-CCP have been published, as far as we can determine no documentation exists that the reaction of serum IgG anti-CCP occurs through engagement of the F(ab) antigen-binding portion of the immunoglobulin molecule and not some other site. Thus, we examined this question directly.

Whole IgG and F(ab)′2 and Fc fragments were prepared from 3 sera positive by ELISA for anti-CCP and 2 sera from normal blood donors. Whole IgG was isolated using protein A from ammonium sulfate precipitates of serum. F(ab)′2 and Fc fragments were prepared with ImmunoPur® kits from Pierce (Rockford, IL, USA) according to the manufacturer’s instructions, and further purified over an anti-Fc or anti-F(ab)′2 affinity column, respectively. Fc-specific horseradish peroxidase-conjugated goat anti-human IgG and F(ab)′2-specific rabbit anti-human Ig (both from Jackson Immunoresearch, West Grove, PA, USA) were balanced for reactivity against each other using different dilutions of each conjugate to test a number of positive sera. Samples were tested by ELISA on a CCP-coated plate to measure specific binding, and an RNP-coated plate to measure nonspecific binding, as well as an Fc capture plate made with goat anti-human IgG, Fc-specific (Jackson). Standard procedures were used for all ELISA. All sera were diluted 1:100, while all Fc and F(ab)′2 fragments were diluted 1:10 for ELISA.

The F(ab)′2 fragments from the 3 anti-CCP positive sera were positive for CCP reactivity on ELISA when detected by the F(ab)′2-specific conjugate, but not with the Fc-specific conjugate (Table 1). The whole IgG from these samples was positive with both types of conjugates. These results showed that F(ab)′2 fragments — and not contaminating whole IgG — were responsible for the observed reactivity of the F(ab)′2 preparations. The whole IgG, Fc, and F(ab)′2 fragments from all samples were negative on the ELISA plates coated with RNP, indicating that reactivity observed with CCP was not due to nonspecific binding.

To ensure that Fc fragments were present, we did 2 tests. Polyacrylamide gel electrophoresis of the Fc fragments yielded a light broad band on the stained gel, showing the presence of protein in a wide molecular weight range. For a more specific test, we found a good reagent pair to develop an Fc capture ELISA. With the reagent blank, the optical density of the Fc capture plate was 0.009, while with the Fc fragments the optical densities ranged from 0.92 to 2.19. Thus, our Fc preparations did contain immunoreactive fragments.

These observations confirm that the F(ab) portion of IgG is responsible for the positive anti-CCP ELISA reactivities of these sera. This result helps solidify ongoing interpretations of basic research into the cause of anti-CCP in RA patients as well as the clinical relevance to rheumatologic applications of this assay.

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Association Between Systemic Lupus Erythematosus and Helicobacter Pylori

To the Editor:

I read with interest the recent report of Helicobacter pylori (H. pylori) sero-prevalence in patients with systemic lupus erythematosus (SLE) by Sawalha and colleagues. Using a large number of samples taken from SLE patients and controls, they suggested the possible role of H. pylori infection in delaying onset of SLE in some ethnic groups. They indicated possible roles of a polymorphism in the human interferon-γ receptor gene and the presence of H. pylori-specific CD4+ CD25high regulatory T cells.

Both phenomena are important in assessing influence of H. pylori on the immune system of infected patients; however, I would like to add at least 4 other mechanisms that involve the immune system of the infected person:

1. H. pylori upregulates secretion of cytokines such as tumor necrosis factor-α (TNF-α); Zentilin, et al reported beneficial effect of H. pylori eradication on disease activity in rheumatoid arthritis (RA). In addition, Gomez and colleagues reported a protective effect of TNF-α on induction of SLE.

2. It is now widely accepted that in H. pylori infected patients there is a shift to a Th1 cytokine response, although this finding remains controversial. SLE cannot easily be classified into definite types of Th response, and disease activity in SLE may alter the shift.

3. H. pylori can produce human stress proteins such as heat shock protein 60 (hsp60) and mycobacterial hsp65. Kalabay, et al showed that H. pylori infection is associated with high levels of antibodies to mycobacterial hsp65 but not to human hsp60 in patients with connective tissue disorders including SLE. Mycobacterial hsp65 have reportedly been associated with RA and can activate the complement system through the classical pathway to exacerbate disease activity of RA.

4. Presence of H. pylori colonization in the stomach results in continuous ingestion of H. pylori constituents to establish oral tolerance against some shared antigens including mycobacterial hsp65. Oral administration of mycobacterial hsp65 has been reported to ameliorate adjuvant-induced arthritis in rats. A successful eradication of H. pylori can result in annihilation of such oral tolerance to exacerbate disease activity of a H. pylori infected patient with RA.

Further studies are required to evaluate roles of H. pylori infection in establishing, exacerbating, and ameliorating rheumatic diseases, using H. pylori eradication in a prospective fashion.

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would be very helpful for both beginning and more experienced rheumatologists; included is information on where to find more information on arthritis, in the UK, the USA and Canada. This text would be recommended for the beginning rheumatologist, as well as the medical resident, as it is light-weight and it is well illustrated and filled with practical details.

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Systemic Lupus Erythematosus, 4th Edition,

Spanning over 1300 pages, the 4th edition of Systemic Lupus Erythematosus is a comprehensive compendium of a fascinating and complex disease. Edited by Robert Lahita with a foreword by Murray Urowitz, the list of contributing authors is a “who’s who” of the lupus field. Significant revisions have been made to many chapters to include the most up-to-date research. Contributions from new authors cover psychiatric, nervous system, and dermatologic manifestations. New chapters detail fibromyalgia and osteoporosis in SLE.

Overall the contents are broadly appealing and logically ordered, progressing from basic immunology to clinical presentations and treatment. The discussions are detailed, in-depth, and inspiring. References are cited throughout the text and the bibliography at the end of each chapter is exhaustive, often containing several hundred references. The illustrations are informative and add interest and variety. Both as a reference book and as a textbook, this publication has something to offer everyone. Systemic Lupus Erythematosus is a worthwhile investment for student, clinician, and scientist alike.

Mandana Nikpour, MBBS, FRACP, Clinical Research Fellow, University of Toronto Lupus Clinic, Toronto Western Hospital. Toronto, ON, Canada.

Correction

Pincus T, Wang X, Chung C, Sokka T, Koch GG. Patient preference in a crossover clinical trial of patients with osteoarthritis of the knee or hip: face validity of self-report questionnaire ratings. J Rheumatol 2005;32:533-9. Professional affiliation for Dr. T. Sokka should include both Jyväskylä Central Hospital, Jyväskylä, Finland, and Vanderbilt University Medical School, Nashville, Tennessee, USA. We regret the error.

Correction

J Rheumatol 2005; volume 32, number 3, March issue (US edition only). The Table of Contents, as continued on page iv, was incorrect, and should have appeared as shown below. We regret the error.